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Gendered Recreational Fisheries Management and North American Natural Resource Policy

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Preface

This doctoral dissertation contains materials developed collaboratively. An explanation of contributions are as follows:

Chapter 2

Author Contributions

Burkett	Research design; data analysis and interpretation; literature review; writing manuscript; corresponding author; revisions and editing
Winkler	Research design; principle investigator; data interpretation, editing and manuscript review
Carter	Editing and manuscript review

Chapter 3

Author Contributions

Burkett	Research design; data analysis and interpretation; literature review; writing manuscript; corresponding author; revisions and editing
Carter	Data analysis and interpretation, editing and manuscript review

Chapter 4

Author Contributions

Burkett	Research design; data analysis and interpretation; literature review; writing manuscript; corresponding author; revisions and editing
Wellstead	Manuscript review
Carter	Editing and manuscript review

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Abstract

This dissertation applies feminist theory to investigate women's participation in wildlife-based recreation and how natural resource management organizations conduct stakeholder engagement in a North American context. Gendered social processes, including norms and expectations, as well as gendered cultures, can constrain women's participation in recreation through social sanctions and disenfranchisement. Gender and leisure scholars have studied these dynamics in sport and leisure contexts, but how individuals negotiate these constraints is understudied in a wildlife-based recreation context. Social constructions of gender also contribute to imbalances of power within formal natural resource management organizations and influence how stakeholder engagement policies and programs are implemented and evaluated.

I applied a mixed methods approach to study how women's recreational fishing participation trends, and their first-hand fishing experiences, are impacted by gendered expectations among both recreational anglers and fisheries managers. Demographic analysis of women's fishing participation patterns in the Great Lakes region show women's fishing participation varies by age and generation. To confirm gender-related reasons for these differences, I conducted a feminist participatory project that provided space for women to share how their fishing experiences were impacted by gendered social processes, age, birth cohort, and other intersecting aspects of their lives and identities. Using the Becoming an Outdoors Woman program as a case study, I demonstrated how historically gendered assumptions about how men and women should interact with fisheries and wildlife can constrain stakeholder engagement programs that serve women by limiting organizations' ability to evaluate program outcomes and social value.

As a whole, this dissertation critically examines women's experiences as fisheries stakeholders and questions the gendered approaches natural resource organization rely on to engage with women. Key contributions of this body of work include identifying how women and natural resource organizations both perpetuate and resist gendered expectations and norms. Understanding how gender influences North American natural resource management requires creative and more nuanced research approaches that consider how gender intersects with other socially institutionalized systems, processes, and identities.

1 Introduction

1.1 Background

1.1.1 Gender in Outdoor Recreation and Natural Resource Management

Gender and environment studies focus on how gender norms and gendered expectations mediate human-environment interactions (Arora-Jonsson, 2014; Arora-Jonsson, 2017). Understanding how wildlife-based recreation and natural resource management is gendered requires acknowledging how socially constructed expectations influence the context of natural resource management (Brugere, 2014; Calhoun, Conway, and Russell, 2016; De la Torre-Castro et al., 2017). Social constructions of gender influence what recreational opportunities are available to people of all genders and contribute to imbalances of power in the context of natural resource management (Arora-Jonsson, 2014; Arora-Jonsson, 2017; Bennett, 2005; Henderson, 1991). These imbalances of power are exemplified by the historic exclusion of women from natural resource decision-making and traditional thinking that wildlife-based recreation activities like hunting and fishing are strictly masculine pursuits (Taylor, 2016; Toth and Brown, 1997).

Natural resources management occurs in the context of demographic and social changes such as aging, increasing racial and ethnic diversity, urbanization, and women's empowerment (Arlinghaus, Tillner, and Bork, 2015; Bruskotter and Fulton, 2013; Heck, Stedman, and Gaden, 2016). These demographic and often gendered social changes impact resource use, funding mechanisms, and public opinions (Arora-Jonsson, 2014; Arora-Jonsson, 2017), yet natural resource management and policy decisions are often based almost exclusively on biophysical evidence (Thayer and Loftus, 2012). For instance, the state natural resource agencies that oversee recreational fisheries management and make policies or policy recommendations in the Great Lakes region tend to focus overwhelmingly on the biological aspects of fisheries (Heck, Stedman, and Gaden, 2015). This failure to consider the social relationships and gender-related processes that influence human-environment interactions and resource management agencies is understudied in the North American context.

Decker et al. (1996) described a philosophical shift in fish and wildlife management from a narrow definition of who natural resource management services to a broader notion of stakeholders. This shift is important because, while natural resources are held in the public trust, traditional clients were defined as those who "pay for and receive services of managers" (Decker et al. 1996, p. 72). A broader conception of stakeholder recognizes "any citizen potentially affected by or having a vested interest (a stake) in an issue, program, action or decision leading to an action" (Decker et al. 1996, p. 72). Although North American fisheries and wildlife organizations employ citizen advisory committees and other stakeholder engagement tools, social issues like the well-documented underrepresentation of women in their stakeholder base are understudied, poorly understood, and considered to a much lesser extent (Burkett and Winkler, 2018;

Calhoun, Conway, and Russell, 2016; Heck, Stedman, and Gaden, 2015). This imbalance can lead to gendered policy interventions that fail to account for differences in how people interact with their environment and governing institutions, which can ultimately result in disparate outcomes for men and women (Arora-Jonsson, 2017; Nightingale, 2016; Rao, 2015).

These dynamics are driven by the challenges of working across natural and social science disciplines and the influence of internal organizational cultures on how evidence is used and how decisions are made (Heck, Stedman, and Gaden, 2015). For instance, the vast majority of fisheries researchers and managers are trained in the natural sciences and don't necessarily know how to incorporate social aspects into their research, management, and policy planning (Heck, Stedman, and Gaden, 2015). This often leads to the omission of studies that seek to better understand either the people who make decisions (e.g. managers/policymakers) or those for whom the decisions are made (e.g. stakeholders) (Arlinghaus et al., 2014). Even when social science evidence is readily available, policymakers can face barriers to incorporating that evidence into decisions within their organization (Cairney, Oliver, and Wellstead, 2016). A failure to integrate human dimensions evidence into decision-making, including any focus on gender-related factors, hinders democratic natural resource governance (De la Torre-Castro et al. 2017; Grafton, 2005; Heck, Stedman, and Gaden, 2015). This highlights the importance of understanding both differences among different stakeholder groups, such as women, and how natural resource management agencies incorporate social science evidence, including gender-related information, into their management strategies and policy decisions.

1.1.2 Purpose Statement

This dissertation analyzes how gendered processes (e.g., norms, socialization, and self-perceptions) shape fishing participation patterns and women's firsthand fishing experiences, and how natural resource organizations conduct and evaluate women's engagement programs. I use a feminist conception of gender and environment relationships to analyze how social constructions of gender are inherent to human-environment interactions and gender-driven inequities such as access to resources (Banerjee and Bell, 2007; Merchant, 1992; Warren, 1987; Warren and Erkal, 1997). Gendered processes and histories can also inform the management of outreach programs aimed at engaging women in outdoor recreation. Feminist research helps us understand power dynamics, governance, and how socially constructed aspects of gender are often left out of natural resource management decisions, human dimensions of wildlife studies, analysis of environmental problems, and ultimately decision-making (Arora-Jonsson, 2017; Nightingale, 2016; Rao, 2015). Additionally, feminist theories of public administration organizations reexamine the taken for granted processes that occur within organizations and emphasizing the "partiality of the dominant" in order to better understand what's beneath the surface (Stivers, 1991, p. 49-65).

In general, gender is not fully considered or addressed in Great Lakes recreational fisheries management and North American natural resource management more broadly, with the exception of a growing literature on women's exposure to contaminants through fish consumption (Connelly et al. 2016; Connelly et al. 2019). Most existing research on the gender dimensions of natural resource management and fisheries has been conducted in the realm of sustainable international development and small-scale fisheries (Kawarazuka et al., 2017; Kleiber, Harris, and Vincent, 2015; Máñez et al., 2016). There are also very few studies that apply a critical lens to examine North American natural resource management practices, policies, and organizations, with the exception of critiques based in Indigenous, decolonization perspectives (Eichler and Baumeister, 2018; Shultis and Heffner, 2016). However, understanding gender norms and associated social processes is a necessary part of practicing inclusive natural resource management and stakeholder engagement. We know very little about how gendered social expectations about human-environment relationships and resource management impacts women and other wildlife stakeholders in the North American context. Women may have different management preferences, priorities, or needs than other genders. Recreational fisheries management and stakeholder outreach can be improved from a more nuanced understanding of women as fisheries stakeholders.

I researched this question from three different perspectives: broad demographic trends among men and women who fish, women's individual fishing experiences, and from the perspective of organizations that implement women's outreach programs. Gender-related patterns can be understood using a number of approaches and research methods, and using triangulation like this helps provide a more comprehensive picture of an issue than any single approach, theory, data source, or method of analysis can (Heale and Forbes, 2013). Here, I used mixed methods including demographic modeling and participatory approaches to investigate how gendered expectations impact women's fishing participation, how women's first-hand fishing experiences are shaped by gender, and how gendered organizations impact women's outreach programs and the staff who operate them. More specifically, my dissertation addresses three interrelated questions:

1. How do fishing participation patterns adopted by different birth cohorts vary by gender identity?
2. What meanings do women derive from recreational fishing, and what external and internal gendered expectations do they navigate in the process?
3. How do gendered natural resource cultures impact how organizations implement and evaluate women's outreach programs?

1.2 Theoretical Foundations

This literature review provides an overview of gender and environment theory and feminist political ecology. It also summarizes how critical studies of North American natural resource management and fisheries management would benefit from a gender perspective, and to what extent the existing research on this subject informs this dissertation.

1.2.1 Gender and Environment Overview

Feminist theory studies how access to resources, including environmental knowledge and systems of knowledge, are distributed based on the social, political, and economic context, and how these social inequities are created and maintained by social hierarchies of power, such as race, class, or gender (Ferguson, 2017; MacGregor, 2017). The concept of gender as a process (e.g. "doing gender") epitomizes the idea that gender is a social act enacted through the normative expectations and social interactions associated with our perceived biological sex (Butler, 2004; Nentwich and Kelan, 2014; West and Zimmerman, 1987). As a social construction and negotiated process, gender is embedded within cultural norms, maintained through larger social structures such as patriarchy and capitalism, and day-to-day interpersonal power dynamics (Ferguson, 2017; MacGregor, 2017). Feminist approaches to understanding gender-environment relationships vary based on how they define gender, how much they focus on other power dynamics, and what other social and political factors are related to gender (MacGregor, 2017). Gender and environment studies emerged from the recognition that both gender and the environment are socially constructed through our engagement in and maintenance of gendered expectations and related power dynamics that shape human-environment interactions (Ferguson, 2017; MacGregor, 2017). An overview of two branches of feminist-environmental approaches, feminist political ecology and ecofeminism, follows.

Political ecologists explore human-environment interactions as inherently political processes, and feminist political ecologists draw from both feminist theory and political ecology to focus on how scientific knowledge is situated by gender, the disproportionate environmental burden women bear, and the role of women in natural resource management and environmental movements (Nightingale, 2016; Warren and Erkal, 1997). This includes the linkages between women's day-to-day activities like household chores and subsistence agriculture or fisheries and on the environmental burden of biological processes like pregnancy and nursing that expose women to environmental hazards (Buckingham-Hatfield, 2000). Research that takes a feminist political ecology perspective typically focuses on environmental policy and planning (Buckingham-Hatfield, 2000), but some scholars go beyond this to include the domination of any superior group over another (Warren, 1987; Warren and Erkal, 1997).

Ecofeminism is a branch of feminism that emerged from understanding the linkages among feminist movements, gender theory, and the social construction and abuse of nature (Banerjee and Bell, 2007; Buckingham, 2004; Warren and Erkal, 1997). At its core, ecofeminism is based in the recognition of an obvious relationship between the domination of nature and domination of women within patriarchal, capitalist societies (Giacomini et al, 2018; Warren and Erkal, 1997). Ecofeminist studies explore the social context of nature, whether that be how nature is valued, attitudes towards nature, the relationship between women and nature, and/or how both nature and women are exploited (Warren and Erkal, 1997). Ecofeminists also contend with the patriarchal assumption that women are closer to nature than men and therefore women are inferior to men (Agarwal, 1992). Much of the early ecofeminism literature reflects an ideology

instead of a scientific perspective or analytical framework, which has led the environmental social sciences to largely ignore the ecofeminism perspective (Banerjee and Mayerfeld Bell, 2007). However, ecofeminism has seen a recent resurgence in its application in environmental case studies that emphasize environmental justice (De la Torre-Castro, 2019; Perkins, 2017).

Banerjee and Mayerfeld Bell (2007) identified three strands within ecofeminism: historical, spiritualist religious, and social scientific. Historical ecofeminism links historical imagery of nature as something that was viewed as wild and in need of taming to the history of colonialism and capitalism, and the control of natural resources, Indigenous peoples, and women. This perspective also emphasizes the power relationships embedded within science and how scientific enlightenment discourse shaped human-environment relationships. Spiritualist religious ecofeminists study spiritual and religious relationships with nature, including symbolism of nature. Social scientific ecofeminism is a more broad approach that looks at the intersection of the oppression of women and the oppression of nature, and how patriarchal societies give men greater access to resources and institutionalize access to power and privilege. This strand of ecofeminism includes how these issues are shaped by other identities such as ethnicity and class, which aligns with a more intersectional understanding of human-environment relationships (Banerjee and Mayerfeld Bell, 2007; Cho, Crenshaw, and McCall, 2013; Crenshaw, 1990).

1.2.2 Critiques of Gender and Environment Studies

A key critique of gender and environment studies is a lack of continuity in how gender is defined and used across disciplines. From a sociological standpoint, sex is a biological distinction whereas gender is understood as the socially constructed identities, expressions, behaviors, and associated masculinities and femininities (Buckingham-Hatfield, 2000; March, Smyth, and Mukhopadhyay, 1999). Interdisciplinary confusion over the definition of gender partially relates to the misuse of the term as a substitute for "sex" in ecological studies of non-human species, social surveys, and human health studies (Krieger, 2003; Magliozzi, Saperstein, and Westbrook, 2016; Westbrook and Saperstein, 2015). This has the tendency to overemphasize the male and female dualism or gender binary, which does not account for a spectrum of genders or how the gendered power relationships that are inherent in our everyday lives extend to other groups besides women (Arora-Jonsson, 2017; Magliozzi, Saperstein, and Westbrook, 2016; Máñez and Pauwelussen, 2016). Gender is also sometimes used as a proxy term for women in policymaking, which leads to women being conceptualized as a single group instead of a varied and diverse group of smaller groups or individuals with varying attitudes, actions, and reactions (Arora-Jonsson, 2017; Young, 1994). This homogenization and avoidance of context can have the effect of perpetuating stereotypes about both men and women, and assuming that environments mean the same thing to different groups of people (Arora-Jonsson, 2017).

This oversimplifications of gender as a binary and/or static characteristic is problematic because it overlooks the complexity and importance of gender as a causal process that impacts, and is impacted by, other processes (Nightingale, 2006). A related criticism of gender studies is that a gendered approach alone is not inclusive enough to account for all the ways power operates in relationship to social diversity and social identity (Nightingale, 2016). The relationship between gender and identity also relates to our attachment to culture or subcultures, social groups, and place (Santos, 2015). Contemporary feminist scholars have addressed this criticism through the development of intersectional approaches that account for intersecting demarcations of difference at the individual, social, cultural, or institutional level (Cho, Crenshaw, and McCall, 2013; Crenshaw, 1990; Davis, 2008). Regarded as one of the most important contributions to contemporary feminist scholarship, intersectionality theory acknowledges that the intersection of multiple systems of power influence how individuals navigate their identities (Arora-Jonsson, 2017; Davis, 2008; Nightingale, 2016). In this theory, gender interacts with and mutually enforces class, race, ethnicity, education, and other factors and how the outcomes of these interactions can be interpreted in terms of power (Acker, 2006; Arora-Jonsson, 2017; Banerjee and Mayerfeld Bell, 2007; Davis, 2008). For example, Thara (2016) showed how coastal fisherwomen in India relied on their intersecting caste-based, gendered, and fisherwomen identities to create and utilize social and political alliances to maintain their traditional occupation. Lokuge and Hilhorst (2017) also applied intersectionality theory to study the combined influence of gender, race, ethnicity, and location on Indigenous women's ability to leverage different sources of power to protect their livelihoods as fisherwomen and market vendors.

1.2.3 Gender Mainstreaming in Natural Resource Management

Feminist scholars have extended gender studies by examining how gender is ignored or addressed within formal organizations (Acker, 1990), including those that emphasize natural resource management and sustainability (Rao, 2015). A key contribution of this work is the idea that gender norms, socialization, and formal governance institutions can be mutually reinforcing (Warren and Erkal, 1997), which highlights the importance of mainstreaming gender in both policy and practice. Gender mainstreaming is the process of promoting gender equity and women's empowerment within the institutions that drive policy and practice by including women and other marginalized groups in their planning and processes (Arora-Jonsson, 2017; Ogra, 2012). The initial push to mainstream gender in environmental decision-making and policies came from the international sustainable development field in the 1990s that was addressing how environmental governance organizations were dominated by males and therefore reflected the concerns of this elite group (Arora-Jonsson, 2017; Rao, 2015). This policy work complemented feminist research which focused more on the informal and formal processes that influence gender inequities by focusing more on women's rights and how women can become economically empowered through organizational change (Arora-Jonsson, 2017; Rao, 2015).

Acker (1990) lists five processes of gendering organizations. First, divisions of behaviors, labor, physical space, and power are constructed along lines of gender. Second, symbols and images are constructed to explain or reinforce those divisions. Third, interactions between individuals within organizations create relationships of dominance and submission. Fourth, individuals' identities are made up of gendered components and can impact what is expected of them in the workplace. Fifth, gender is responsible for creating social structures within organizations. This can include the assumptions and practices that make up organizations. Acker's (1990; 2006) analysis applies to natural resource management because the reality that fisheries management institutions themselves are gendered is rarely recognized or discussed in either the academic literature or in practice (Brugere, 2014; De la Torre-Castro, 2017). Men and historic masculinities still dominate natural resource management organizations (Rao, 2015). However, because these institutions are often conceptualized as gender-neutral, how patriarchal organizations perpetuate and disseminate constructions of gender is not typically analyzed or explained in the North American context. Recognizing these processes is part of gender mainstreaming, but this approach is largely limited to the literature on environmental policy and natural resources management in an international development context (Arora-Jonsson, 2017). This is important because the organizations that make policies and manage natural resources like fisheries can also be gendered, which influences the services and programs they offer and how they interact and engage with stakeholders (Acker, 1990; Acker, 2006).

Prior experience, professional norms, and organizational cultures all influence staff attitudes how and what tasks are performed within organizations (Fortmann, 1990; Wilson, 1989). These factors undoubtedly interact to influence how much human dimensions, including ideas of gender, are considered in natural resource agencies. Indications of these issues have already been established within Great Lakes fisheries management agencies where a lack of interdisciplinary or social science expertise within fisheries management agencies stemming from professional norms and organizational cultural attributes has led to negative attitudes towards social science information and lack of intention to use this information in management decisions (Heck, Stedman, and Gaden, 2015). This highlights the need to study not only recreational fisheries stakeholders, but also the institutions that manage them in order to address a lack of gender awareness.

One of the common explanations for a lack of acknowledgement of gender or other social processes in North American resource management is that resource managers are largely trained in the physical and natural sciences (Heck, Stedman, and Gaden, 2015). Personal beliefs, which are influenced by professional norms, determine how tasks are defined under personal discretion (Wilson, 1989). Cairney, Oliver, and Wellstead (2016) argued that policy research focuses too much on the rational means and not enough on the irrational tools policymakers use to cope with ambiguity and uncertainty. Policy makers use heuristics, or cognitive shortcuts, to cope with ambiguity (Cairney, Oliver, and Wellstead, 2016). This includes rational means like prioritizing some information over other information and irrational means like relying on emotions, their

gut, worldview, and other similar emotional means to make quick decisions (Cairney, Oliver, and Wellstead, 2016). Without comprehensive rules for collecting and using human dimensions data, agency staff use their prior experiences to define how they approach accomplishing tasks. This partially explains why the typical North American natural resource agency doesn't necessarily have a refined structure for, or long history of, studying human dimensions of fisheries.

A realist perspective also points out that policymakers are embedded within a political culture that resists the influence of rational knowledge (Sanderson, 2002). Tasks that are viewed as outside the established organizational culture will not be given the same energy, attention, and resources as other tasks (Wilson, 1989). For instance, organizations with multiple cultures that compete for primacy could experience conflict as members of each culture attempt to defend their turf, and agencies will resist taking on new tasks that are viewed by staff as incompatible with their dominant sense of mission and organizational culture (Wilson, 1989). This means that, even if resources managers can overcome the challenges of understanding and being confident in how important it is, and when, where, and how to use social science information, this evidence still may not be integrated into decision-making because tools for doing so do not exist (how) within the agency institutional environments (Heck, Stedman, and Gaden, 2015).

The human dimensions of natural resources is both a field of study and a practice that incorporates human-related issues into natural resource research and management (Dobson, Riley, and Gaden, 2005). However, while human dimensions research has been useful in highlighting the stakeholder groups that are often ignored or left out of natural resource governance and management decisions, studies focusing on gendered processes within fisheries management are much less common and women as a stakeholder group are often forgotten in policy, practice, and research (Brugere, 2014; de la Torre-Castro, 2017). The diffuse and pluralistic nature of natural resource issues necessitates understanding how different members of society value and use natural resources and including more detailed social and human-centered approaches in natural resource planning, management, and policy development (Brown, 2009; Manfredo, Teel, and Zinn, 2009). Despite this broad-sweeping emphasis on understanding how different members of society value and use natural resources, the human dimensions of natural resources literature lacks comprehensive study of how gender impacts resource use, valuation, and management. This missing perspective is partially related to the fact that emphasizing stakeholder perspectives in management decisions in a more structured, formalized way is part of a relatively recent philosophical shift among natural resource professionals (Decker et al., 1996; Henderson, 2016). The traditional model of North American resource management took a top-down, command and control approach focused on producing predictable outcomes for a minority group of stakeholders that had a disproportionate amount of influence and power in determining resource management goals and outcomes (Holling and Meffe, 1996). This combined with gender expectations and social inequities led resource agencies to not recognize women to the same extent they regarded their male clients.

1.2.4 Feminist Leisure and Outdoor Recreation Studies

Feminist leisure scholars have examined how women are frequently left out of what are viewed as traditionally masculine or male leisure pursuits and how participation in outdoor recreation can lead to both individual and group empowerment through the formation of new social relationships and the resistance of gender norms (Culp, 1998; Henderson and Gibson, 2013). However, with the exception of recent studies of female hunters (see Bragg-Holtfreter, 2017; Gigliotti & Metcalf, 2016; and Metcalf et al., 2015), gender in general has been a neglected topic in wildlife-based outdoor recreation (e.g., fishing and hunting) contexts.

Gender has been studied in the context of sustainable fisheries development, planning and policy (Bennett, 2005; Revollo-Fernández et al. 2015; Santos, 2015), how gender norms and gender expressions differ in subsistence and commercial fisheries (Santos, 2015; Schwerdtner-Máñez and Pauwelussen, 2016; Yodanis, 2000), and women's role in commercial fishing communities (Calhoun, Conway, and Russell, 2016; Davis and Nadel-Klein, 1992). Research that incorporates gender into recreational fishing studies are much less common. Most research about recreational fisheries stakeholders assumes that those stakeholders are primarily male or focuses entirely on male stakeholder groups; although some studies have revealed disparities between different recreational fisheries stakeholders in their political influence, education, money, and time, what these studies often omit are explanations of how gender either mediated or drove these social dynamics (May, 2015). Of the studies that do claim to include gender as a factor when studying recreational fishing, many use gender as a substitute for the binary categorization of sex (male or female) (see Kuehn, 2006, Kuehn, 2013).

Applying a feminist theoretical framework to study recreational fisheries management is useful and important because ignoring the role of women in fisheries can lead to underestimating their experiences as participants and stakeholders and it could also lead to the omission of an important stakeholder group that may have different governance priorities or management needs (Máñez et al., 2014). Including women in natural resource management can also improve collaboration, group solidarity, and even conflict resolution (Westermann, Ashby, and Pretty, 2005). Santos (2015) notes that gender equity in fisheries management is important because men and women have different knowledges and different understandings of fisheries resources and therefore different perspectives that are valuable to policymakers, and Revollo-Fernández et al. (2015) showed that excluding women from decision-making can lead to disparate fisheries governance outcomes. Women who participated in game theory experiments exhibited more sustainable outcomes for hypothetical fisheries extraction decisions than male participants (Revollo-Fernández et al. 2015).

Considering how gendered processes manifest in recreational fishing participation and influence women's participation, inclusion, and experiences is important because women have been historically underrepresented in outdoor recreation activities for reasons rooted in socially constructions of gender and social relationships (Henderson

and Gibson, 2013; Toth and Brown, 1997). Of the many factors that influence someone's likelihood to participate in recreational fishing, which include age, gender, ethnicity, and socioeconomic status, gender identity alone is the best predictor of recreational fishing participation (Floyd et al. 2006). Furthermore, men and women could value their fishing experiences differently, have different underlying reasons for fishing, and differ in their management preferences (Schroeder et al., 2006). For example, most people learn to fish through their family where gendered expectations and norms can prevent young women from learning to fish (Toth and Brown, 1997), and young women are often socialized to put their family obligations and male spouse first above their leisure interests, which leads to lower participation in certain outdoor recreation activities (Boyle and McKay, 1995; Henderson and Dialeschki, 1991; Schwerdtner-Máñez and Pauwelussen, 2016; Toth and Brown, 1997). Women also sometimes avoid outdoor recreation activities because of the perception that they are inappropriate or even dangerous for women (Lee and Floyd, 2001).

Gender and leisure studies has moved beyond the male and female dualism to focus on how the intersection of gender, power, class, and other socioeconomic factors impacts fisheries stakeholders (Floyd et al. 2006; Novak Colwell, 2017). Intersectional outdoor recreation studies incorporate how other social factors, such as class, race, or other identities, interact with gender to shape how women interact with the outdoors, position themselves within nature, and recreate (Henderson and Gibson, 2013; Lee and Floyd, 2001; Shaw, 1994; Taylor, 2016). Gendered outdoor recreation experiences can be exacerbated for women who live in rural areas because gendered expectations are more acute than in urban areas (Hunter and Whitson, 1991; Toth and Brown, 1997). Gender norms and expectations also change over time and based on sociocultural context, which necessitates longitudinal study of fisheries stakeholders that take into account shifts in broader sociocultural understandings of gender.

1.3 Dissertation Structure and Research Design

This dissertation applies feminist theory to critically analyze how gender influences women's recreational fishing participation in the Great Lakes region and how natural resource organizations engage with women as outdoor recreation stakeholders. Understanding how gendered processes influence recreation fishing participation patterns and women's experiences is a necessary first step in understanding a previously understudied and overlooked stakeholder group and creating more inclusive fisheries management. Natural resource organizations are also gendered (Rao, 2015), but feminist studies of how gendered processes operate within North American natural resource organizations are absent. This dissertation addresses this gap by examining how organizational staff navigate long-standing, and gendered, assumptions about how to best engage with natural resource stakeholders, including women.

My dissertation is structured as three articles prepared as separate publications. Using a mixed methods approach that studies this issue at three triangulated levels – including the level of individual stakeholders, programmatic level, and broad scale

demographic trends – allows me to test assumptions and ideas about gender and environment questions that cannot be studied with a single methodological approach (Olsen, 2004; Seawright, 2016). These studies also constitute multiple epistemological approaches to studying this topic. Chapter 2 is framed as a deductive, or theory-testing study that seeks to confirm the existence of cohort effects among recreational anglers. It also identifies evidence of gender socialization differences between men and women. Alternatively, Chapter 3 takes an inductive or theory building approach guided by grounded theory to help explain how women's fishing experiences are gendered and how they navigate and define their own experiences. Chapter 4 takes a more descriptive approach to identify how long-standing gender norms among natural resource professionals and organizations impact how women's programs are implemented and evaluated. Together, these three studies form the basis of a deeper understanding of how gendered expectations and histories manifest in the context of wildlife-based outdoor recreation participation and management.

These articles are bookended by the broader theoretical foundations of feminist and gender theory as it relates to human-environment relationships and North American natural resource management (in this introductory chapter) and a concluding chapter that summarizes the key contributions of each study and this dissertation as a whole. The next subsections provide an overview of each study's unique research design, methodologies and theories that were employed, and a justification for why these designs were selected.

1.3.1 Fishing Participation and Age-Period-Cohort Analysis

Chapter 2 investigates differences in men and women's fishing participation in relation to theories of gender, birth cohort, and socialization into outdoor recreation activities. The goal of this study is to use long-term data on fishing participation (based on fishing license sales) to better understand how specific birth cohorts participate in recreational fishing, and how slow, societal-level shifts in gender norms might be impacting different generations of men and women, and how they participate in recreational fishing, in unique ways. Specific research questions include, 1) Do recreational anglers in the upper Great Lakes states exhibit differences in likelihood to fish based on their year of birth (cohort effects)? 2) Which birth cohorts of men and women are most likely to participate in recreational fishing, and how does this vary by gender? 3) Which birth cohorts of women are most likely to fish under an individual fishing license versus a spousal (married couples) license?

To answer these questions, I analyzed a complete set of fishing license sales data from Michigan, Minnesota, and Wisconsin for the years 2000-2016 using age-period-cohort (APC) regression analysis. APC modeling is designed to distinguish the independent effects of birth cohort from the independent effects of age and time period, thus determining the extent to which fishing participation is driven by age (at the time fishing license was purchased), cohort (birth year), or time period (year license was purchased). Yang et al.'s (2008) intrinsic estimator in Stata statistical software controls for the inherent collinearity of age, period, and time (StataCorp 2015). This estimate has

been shown to produce internally valid results (Yang et al. 2008) and has similarly been used to estimate APC effects in hunting participation (Winkler and Warnke 2013).

1.3.2 Women's Fishing Experiences and Participatory Photovoice

Chapter 3 asks, How do gender-related factors influence Michigan women's decision to participate in Great Lakes recreational fishing? Women are underrepresented among recreational anglers (Burkett and Winkler, 2019), and understanding members of underrepresented communities requires creating or facilitating opportunities for individuals and communities to identify their own concerns, problems, and values and share and describe their experiences in their own language (Fortmann, 2009; Gaventa & Cornwall, 2009). Critically considering whose knowledges are recognized, where and from whom we obtain these knowledges, and how we use them is also a dominant theme of feminist leisure research (Aitchison, 2013; Banerjee & Mayerfeld Bell, 2007; Wheaton, Watson, Mansfield, & Caudwell, 2018). Women are not homogenous, and visual, feminist participatory approaches can provide researchers with a framework for avoiding placing their own assumptions on women's leisure experiences and "acquire an authentic understanding of women's needs, desires, opportunities and constraints" (Hargreaves, 2002, p. 11). Visual research techniques that incorporate photography and storytelling also bring complex narratives to light, create a new awareness of women's perspectives, and challenge old tropes (Acott & Urquhart, 2015; Mitchell, 2011). For these reasons, I selected a community-engaged research approach called photovoice to show how women define and describe their fishing experiences, how they first begin fishing, why they continue to fish in the Great Lakes specifically, and how their gendered experiences impact these processes.

Photovoice leverages the rich context that emerges from group storytelling and visual imagery to understand how individual and group-level factors, institutions, and physical environments influence individuals' behavior and beliefs (Latz, 2017). Like other forms of participatory research, photovoice creates opportunities for researchers and community members to collaborate and co-create process-driven knowledge (Acott & Urquhart, 2015) and emphasizes the collective by bringing together individuals who might not otherwise feel empowered to act on an individual level (Bell, 2008; 2015; Latz, 2017). The photovoice process typically includes participant recruitment, an initial group meeting or orientation, time for individual photography, additional group meetings, and a closing meeting or "exhibit" which can take many forms (Latz, 2017).

Grounded theory is a useful tool for analyzing data collected during feminist, participatory research processes, including photovoice, because it emphasizes uncovering and acknowledging participant-level knowledges (Latz, 2017). Analysis of photovoice outcomes, which included group meetings, observations, photographs and narratives or "photostories", was conducted using grounded theory approach in order to let the participants' perspectives and priorities speak for themselves. Grounded theory is an ongoing, iterative approach that emphasizes continuous interaction between empirical data and existing social theories until clear and stable patterns emerge (Charmaz, 2006).

The grounded theory process includes data coding, analytical memoing, and development of a case-specific theory or theories that remains true to, and foregrounds, participants' own voices, meanings, and experiences, rather than relying on predetermined hypotheses or researcher assumptions (Charmaz, 2006). Participants' photostories, transcribed group discussions, and researcher observations and analytical memos were all included in data collection and analyzed using grounded theory as outlined by Charmaz (2006) and aided by NVivo software (QSR International Pty Ltd, n.d.).

1.3.3 Gendered Organizations and Becoming an Outdoors Woman

While Chapters 2 and 3 focus on recreational fishing participants, we know that gender norms, socialization and recreationists experiences, and formal institutions are mutually reinforcing. It is therefore necessary to understand how gendered dynamics operate within natural resource organizations because internal organizational norms have an external impact on recreational anglers and other stakeholders. Gendered organizational processes including professional norms, cultural norms, and policies all impact internal staff and related programs (Acker, 1990). Chapter 4 is a case study demonstrating how gendered organizational policies operating within natural resource management organizations influence how these same organizations implement and evaluate engagement programs that target women as outdoor recreation stakeholders.

The North American model of wildlife conservation emphasizes fishing and hunting and related stakeholder engagement programs. These programs are rooted in historically masculinized ideas of how white and male North American stakeholders should interact with wildlife and support conservation and resource management. This study asks, How do these and other related gendered ideas and assumptions impact Becoming an Outdoors Woman (BOW) programs?; What related challenges to Becoming an Outdoors Woman coordinators face?, and How do they overcome these challenges? Examining organizational behavior from an employee's bottom-up perspective can help us understand complex organizational behavior and resulting policy outcomes (Brodkin, 2012; Hupe and Hill, 2015; Lipsky, 2010).

In this study, I used directed qualitative content analysis of semi-structured interviews with Becoming an Outdoors Woman (BOW) program staff and volunteers to situate BOW in a gendered policy context (Hsieh and Shannon, 2005; Kuckartz, 2014). By doing so, I explain how masculinized assumptions about how to best engage with women via BOW are simultaneously increasing positive attention for the program while constraining BOW program staff's ability to evaluate BOW.

1.4 Author Positionality Statement

Researcher positionality refers to how a scholar relates to the topics they study, research methodologies and analysis tools they use, and any research participants they engage with (Bourke, 2014; St. Louis and Barton, 2002). Positionality can include one's

many and often intersecting identities, include gender, race, age, and professional background. It is important to acknowledge one's positionality because it influences how one frames their research, analyzes data, and interacts with research participants. Intersections between research participants' perspectives and experiences and researcher's own lived experiences and perspectives can have an influence on research decisions and project outcomes (St. Louis and Baron, 2002). Analysis tools like grounded theory are designed to overcome research subjectivity, but these dynamics are always at work and are worth describing.

My positionality and presentation as a cisgender white woman who has fished and studied fisheries in the past, and who grew up in both metro-Detroit and the Upper Peninsula of Michigan certainly influences my research and how I choose to, and am able to, interact with project collaborators (e.g., fisheries professionals) and participants (e.g., women who fish for recreation). For instance, the majority of photovoice project participants identified themselves as white/Caucasian/European women, and as someone who has fished in the past I could leverage this experience and background knowledge to build a sense of commonality that made the participants feel comfortable sharing their own stories. Before embarking on this research, I regarded myself as a wildlife ecologist, and subsequently I thought about fisheries from the perspective of what fish were eating, how they compete for resources, and how invasive species impact native fishes. This background has made it easier for me to relate to, and connect with, natural resource managers who work in the field of fish ecology and fisheries management. For instance, if I mention my master's thesis advisors by name (and I sometimes intentionally do this), this can build a certain level of respect between myself and someone familiar with Great Lakes fish ecology and fisheries research.

The decision to use participatory photovoice and women's stories and group storytelling was also influenced by my own personal connection to fishing and a rich family history of spending time outdoors, hunting and eating white-tailed deer, and fishing for fun and for food. For me fishing is both sentimental and violent. Fishing with my family, specifically my grandfather, was an important and memorable part of my childhood. In my memory, my grandfather treated me the same as my brother and male cousins. As I entered middle and high school, however, I recall feeling resentful that I wasn't invited by my uncles to go fishing (whereas they took their sons and other male relatives along). This is my first recollection of experiencing gender norms related to outdoor recreation. The first time I went "smelting" for rainbow smelt at night, in the dark, on the shore of Lake Michigan, a close friend (and a young man) explained that I was supposed to bite the head off the first fish I caught. I never did, and I always felt a little disappointed that I couldn't fully fit in to the social world of smelting as a result. These experiences have made it possible for me to relate to the experiences of the photovoice participants as a woman in a masculinized sport.

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2 Gender and Birth Cohort Influence Fishing Participation in Great Lakes States

2.1 Abstract

This study links cohort and gender socialization theories to investigate likelihood to fish among Great Lakes region residents. We used age-period-cohort (APC) regression analysis of fishing license sales records and U.S. Census data from Michigan, Minnesota, and Wisconsin to estimate likelihood to fish based on gender and birth cohort (birth year). We also investigated whether women are more likely to fish under an individual or a spousal license, and how this varies by birth cohort. APC results showed that, in general, women born after 1980 were more likely to fish under an individual license than all other birth cohorts whereas women born 1960-1980 were more likely to fish under a spousal fishing license. APC analysis for men were less consistent across the three states, with some evidence for increased likelihoods to fish for men born in the 1960s and, for Minnesota only, between 1975 and 1990. These findings demonstrate the importance of understanding the processes through which men and women are socialized to fish, and how this varies based on the year they were born. Although gender norms and the social acceptability of women fishing have changed over time, our study suggests that gendered socialization processes continue to influence men and women's likelihood to fish throughout their lives.

2.2 Introduction

The North American model of wildlife conservation relies on the financial input of hunters and recreational anglers through license sales and equipment excise taxes (Eichler and Baumeister 2018; Organ et al. 2012). However, the state natural resource agencies that depend on this funding stream currently face nationwide declines in hunting participation, regional declines in fishing participation, and associated decreases in conservation program funding (Burkett, Winkler, and Klaas 2018; Price Tack et al. 2018; Winkler and Warnke 2013). These declines are attributed to sociocultural shifts in how people relate to and value living natural resources, urbanization, and the aging of groups (namely White, male Baby Boomers) that for decades have been the mainstay of the user-pay model through their consistent participation in hunting and fishing (Winkler and Warnke 2013). State agencies and hunting and fishing organizations have responded to declining overall hunting and fishing participation by attempting to attract and retain new or former participants to fishing and hunting through marketing campaigns and implementation of recruitment, retention, and reactivation or "R3" programs (AREA 2016; Holsman 2016; Minnesota DNR 2016).

Although R3 programs target multiple audiences, women are of particular interest because they are vastly underrepresented among hunters and anglers and therefore a group with substantial room to grow (AREA 2016; Burkett and Winkler 2018; US DOI

FWS 2013). Recent studies of hunting and fishing participation show that women are already a growing group among hunters and anglers, which is encouraging for agencies deciding where and how they should invest in R3 efforts (Burkett and Winkler 2018; Winkler and Warnke 2013). In 2016, an estimated 27 percent (9.6 million) of the 35.8 million recreational anglers in the United States were women, which was up from 25 percent (7.6 million) in 2006 (U.S. DOI et al. 2013, 2018). Women have also been shown to engage in outdoor recreation for family-oriented reasons and/or to spend time with their spouse, and are consequently considered a direct route to engaging children and entire families in these sports (Kuehn, Dawson, and Hoffman 2006; Martin and Miller 2008).

Understanding what social and demographic factors motivate, or constrain, individuals' participating in fishing and hunting can inform more effective and inclusive engagement programs and policies. Gender identity is a strong predictor of someone's likelihood to fish or hunt (Arlinghaus 2006) and how consistently they participate (Fedler and Ditton 2001), but gender is often used as a binary term that does not account for its broader, social impacts on hunting and fishing behavior. Gendered expectations are socially constructed and maintained through interactive processes, including normative expectations, behaviors, and associated masculinities and femininities affiliated with perceived biological sex (West and Zimmerman 1987), and these expectations change over time and interact with other characteristics and demarcations of difference at individual, social, cultural, or institutional levels (Crenshaw 1989). These sociocultural interpretations of gender that prohibit or inhibit participation in a sport or leisure-related activity (Jackson 1988; 1991; Jackson and Henderson 1995 p. 31). This highlights the importance of understanding gender as both an identity and a social performance that influences cultural and social expectations and norms, including how people choose to spend their leisure time (Henderson 2013; Freysinger, Shaw, Henderson and Bialeschki 2013b). Gendered expectations regarding how both men and women recreate outdoors and interact with wildlife are particularly acute in the context of "hook and bullet" sports because dominant cultural norms masculinize fishing and hunting (Bye 2003; Floyd et al. 2006; Lee, Scott, and Floyd 2001; McKenzie 2005; Metcalf et al. 2015; Rodriguez et al. 2016; Schroeder et al. 2006; Toth and Brown 1997). Therefore, informed R3 policies and related outreach programs need to account for gender-based differences in how and when individuals are introduced to outdoor sports, and how this changes over time for people born during different eras.

One way to study shifts in outdoor recreation behavior over time and across generations is through cohort and gender socialization theories. Cohort theory posits that sociocultural events, norms, and related cohort-specific socialization experiences impact the worldviews and subsequent behavior of specific generations of people differently throughout their lives (Ryder 1985; Yang, Schulhofer-Wohl, Fu and Land 2008). Resulting cohort effects influence the beliefs and behaviors of entire generations and contribute to lasting social change as each successive generation replaces the previous one (Ryder 1985). Epidemiologists have applied this theory to identify which birth cohorts are more or less prone to certain diseases (Holford, 1991). A classic example

from this field is that birth cohorts born in the 1940s and 1950s, who grew up when cigarette smoking was much more common among adults and young adults and not widely viewed as a public health issue, were more likely to take up this habit and therefore more likely to develop lung cancer later in life than more recent birth cohorts that were socialized to avoid smoking because of the associated health risks (Holford, 1991). Socialization processes as especially salient at certain ages, namely childhood and young adulthood, which means that the habits and norms established at younger ages can have especially lasting impacts on lifelong behavior(s) (John et al. 2017).

More specifically, gender socialization includes the processes by which humans learn cultural rules, norms, and expectations that are tied to gender (Bussey and Bandura 1999; John et al. 2017). This process begins early in life, and also has lasting impacts that influence individuals' behavior throughout their lives (Martin and Ruble 2004). For instance, widespread sociocultural forces attributed to the contemporary women's movement, equal opportunity policies like Title IX, and increased media coverage and visibility of women in sport all contribute to long-term shifts in what recreation activities are deemed gender appropriate (Auster 2008; Henderson 2000, Henderson and Gibson 2013). In this way, gender, cohort, and socialization intersect to cause generational differences in women's participation in sports. This includes the proliferation of women's participation in organized sports over the past 30 years. Title IX sparked increased opportunities for young women to participate in recreational activities that were not available to previous generations of women (Auster 2008; Paule-Koba 2013). Auster (2008) found generational differences in women's likelihood to participate in the masculine and male-dominated sport of ice hockey, with younger generations of women that had access to organized team sports at young ages being more likely to participate in ice hockey than older women who lacked access to similar opportunities in their youth. Acknowledging this intersection of gender and cohort helps explain how past gendered expectations and norms have long-term impacts on entire generations, and how recreational behaviors evolve over time as people belonging to different birth cohorts are socialized under different and changing gendered expectations.

In an outdoor recreation context, gender socialization determines and mediates if and how individuals are introduced to leisure activities and how one's participation in these activities is perceived and portrayed by others based on their gender (Culp 1998). Bryd, Lee, and Olynk Widmar (2017) found that individuals whom do not know a hunter personally are less likely to find it acceptable to hunt, but in general how gender socialization influences participation in hunting and fishing is poorly understood and understudied. Gender socialization in sport has identified how different members of the family unit can have disproportionate influence on children's sport involvement (Greendorfer and Lewko 1978). However, how gender socialization may be contributing to women's rising participation in fishing (Burkett and Winkler 2019) and hunting (Winkler, Henderson, and Rudolph 2016) has not been studied (Toth and Brown 1997). We also don't know how ideas of what it means to be masculine or manly influence men's behavior in hunting and fishing and how welcome they feel in these sporting spaces. For example, different sub-groups of women may be socialized differently

regarding whether fishing (or other outdoor sports) are acceptable and regarding other gendered expectations that drive social opportunities and obligations and shape the amount of time and access that different groups have to fishing. Men are also influenced by gendered expectations and ideas of masculinity that determine how welcome they feel they are in a sport that has been traditionally masculinized and dominated by older, white men. Gender-related expectations also change over time (Henderson 2000; Freysinger, Shaw, Henderson and Bialeschki 2013a), which necessitates longitudinal study to see how changing gender norms impact individuals born into different generations in unique ways.

We do see some evidence of temporal shifts in how women are socialized into hunting and fishing. New education programs and business that market to women are actively recruiting younger generations of women into fishing, hunting, and outdoor recreation in general (AREA 2016; Henderson 2000; Bylander et al. 2016; Pawelko 2004). The visibility of women who fish has also increased through recent marketing campaigns aimed at women by outdoor recreation retailers (Orvis 2019), women-specific outdoor recreation programs (Thomas and Peterson 1993), and social media coverage of women-specific recreation clubs (Women Ice Angler Project 2019a, 2019b). The "Becoming an Outdoors-Woman" (BOW) program established at the University of Wisconsin-Stevens Point in the early 1990s, which dedicates a majority of its programming to fishing and hunting specific activities, is now active in 38 states and 6 Canadian provinces (University of Wisconsin Stevens Point 2019), and Trout Unlimited (TU) has a diversity initiative that encourages local chapters to create a "welcoming environment for TU members of different genders" (Buchta et al. 2018, 48; Jackson 2018). These initiatives socialize women to learn sports like hunting and fishing through programs that were unavailable to women in the past. (Toth and Brown 1997). Despite these specific campaigns, gendered cultural norms continue to constrain recreational anglers, and women are more constrained than men in their ability to access leisure opportunities and have high quality experiences (Jackson and Henderson 1995). Schroeder et al. (2008) identified fear of gender or ethnicity-related discrimination as a reported constraint to fishing, which suggests that while outreach and engagement programs targeting women and other fishing minorities are necessary, they do not completely address broader cultural norms that perceive non-white, non-male participants as outsiders in sportfishing contexts.

Life course-related gender norms can also drive fishing behaviors and decisions. During early motherhood, cultural expectations restrict women's leisure time through social pressures to prioritize caregiving and family which subsequently leads to lower participation in leisure activities and decreased quality of experiences (Shaw 1994; Yerkes, Roeters, and Baxter 2018). Given what we know about the masculinization of outdoor sports and gender norms, it is probable that fishing with a spouse or acquaintance is one way women negotiate social constraints. Older generations of women may be more likely to fish with a spouse than more recent generations of women who have been subject to different expectations regarding both the quality of their experiences and their ability to recreate outdoors independent of their spouse. Kuehn, Dawson, and Hoffman

(2006) found that women's fishing socialization emphasized social aspects of fishing, whereas men's socialization emphasized sporting aspects of fishing in addition to social aspects. 73 percent of women who participated in the Illinois BOW program self-reported that they participate in outdoor activities with a male spouse or significant other (Martin and Miller 2008), and fishing with a spouse could be more important to Minnesota women than fishing with friends or alone (Schroeder and Fulton 2010).

Agencies concerned with recruiting and retaining more women to fishing and hunting need information about how women's fishing participation differs generationally and how this is mediated by gendered sociocultural policies and processes (Rodriguez et al. 2016). This information can help management agencies identify which groups are more or less likely to fish and hunt in the future, create more focused R3 programs, and make more pragmatic decisions about how to continue to fund natural resource management. Previous studies of the constraints anglers face, and how they cope with these constraints, have not examined how women's fishing behavior is impacted by the interaction of gender and social constraints or facilitators to fishing (Schroeder and Fulton, 2010). For instance, in their survey of licensed Minnesota anglers, Schroeder et al. (2006) found that women reported fishing fewer days per year than male respondents, and that women were less likely to report that fishing was an important activity in their life, but their analysis did not separate women into any subgroups based on this birth cohort (birth year), age, or any other demographic factors. Winkler and Warnke (2013) demonstrated the impact of birth cohort on individuals' likelihood to hunt, but further study is needed to identify the importance of birth cohort and gender to shift from the assumption that all women, or all men, face a similar gendered context of consumptive outdoor recreation.

2.3 Study Objective

This study investigates differences in men and women's fishing participation in relation to theories of gender, birth cohort, and socialization into outdoor recreation activities. We use a demographic analysis of complete fishing records sales data from three states over 17 years to document differences how men's and women's fishing participation varies by birth cohort (birth year). Specifically, this study analyzes how gender and birth cohort influence fishing participation among men and women in the Great Lakes region. We employ age-period-cohort analysis to answer the following research questions and test our associated hypotheses:

1) Do recreational anglers in the upper Great Lakes states exhibit differences in likelihood to fish based on their year of birth (cohort effects)?

H1: Anglers in upper Great Lakes states will exhibit cohort effects. We expect to find differences in fishing participation based on birth cohort because individuals born in different time periods are subject to different gendered expectations and socialization experiences in their formative years.

2) If cohort effects are found, which birth cohorts of men and women are most likely to participate in recreational fishing, and how does this vary by gender?

H2: For men, we hypothesize that individuals born between 1944 and 1964 will be more likely to fish than men who belong to more recent birth cohorts because male Baby Boomers have had more opportunities to be socialized into outdoor recreation than more recent birth cohorts. For women, we would expect more recent birth cohorts to be more likely to fish than previous birth cohorts because these more recent cohorts have been socialized into fishing more so than any prior birth cohorts.

3) Which birth cohorts of women are most likely to fish under an individual fishing license versus a spousal (married couples) license?

H3: We hypothesize that older generations of women are more likely to be licensed under a spousal fishing license than younger born more recently because women belonging to older generations were socialized to view fishing with a spouse or adhering to their spouse's behavior and preferences as more acceptable (Shaw 1994).

2.4 Methods

2.4.1 Data Collection

Annual fishing license sales records for the 17-year period from 2000 to 2016 were provided by the Michigan, Minnesota, and Wisconsin Departments of Natural Resources. The data provide a complete record of in-state resident fishing participants, and are the best available proxy for assessing fishing participation in these three states. Records were organized by individual license holder, meaning that each data point represented a unique fishing license purchased by an in-state resident. License records included the license holders' birth cohort (birth year), gender identification coded as sex (male or female), zip code/county of residence, and type of license purchased (individual or spousal). We understand that sex is not the equivalent of gender, but in the absence of data collected using more gender inclusive categories these data provide the best available proxy for gender identity at a large scale. We define an angler as any state resident who purchased any type of fishing license within a licensing year.[1] Table 1 provides a summary of these angler data by state, sex, and license type for the most recent year of data (2016).

[1] Licensing year varies by state. In Minnesota, it is March 1 thru February 28 of the following year. In Michigan and Wisconsin, it is April 1 thru March 31 of the following year.

Table 1. Fishing license data summary for 2016. Totals reflect the number of unique fishing license holders by state, sex, and license type (individual or spousal) for ages 18-64.

State	Male Individual License Holders	Female Individual License Holders	Female Spousal License Holders	Total Unique Anglers
Michigan	587,429	169,109	n/a	756,538
Minnesota	410,885	134,936	210,851	756,672
Wisconsin	490,011	163,162	300,671	953,844

Spousal fishing licenses are available to married couples in Minnesota[2] and Wisconsin[3], while Michigan does not currently offer a spousal fishing license. Married couples have the option to purchase a joint license instead of each individual purchasing an individual license. Where available, spousal fishing licenses are popular, comprising 61 percent of fishing licenses sold to women in Minnesota in 2016 and 37 percent of licenses sold to women in Wisconsin in 2016 (Burkett and Winkler 2018b, 2018c). Purchasing a spousal fishing license does not necessarily mean that couples fish together, but the availability of this fishing license option provides a means to assess the role of socialization on women's likelihood to fish based on their spouse's fishing behavior.

Significant data cleaning and organizing was required to utilize license sales data from multiple states. Data for each state were standardized into a comparable format by calculating single year of age based on known date of birth for each license purchaser, restricting analysis to in-state residents ages 18-64[4], and removing individuals exempt from purchasing a license.[5] We organized these data in a panel fashion showing the number of anglers each year by state, single year of age, sex, and license type, along with the total number of potential anglers based on estimates from the US Census Bureau of the total population (by age, sex, and marital status). Combining the fishing license and Census data in this way allows us to follow cohorts of anglers and the total population of potential anglers over time. We used population estimates from the US Census Bureau, Population Estimates program (US Census Bureau) to generate the number of potential anglers (by age and sex) residing within each state. To account for any differences in marriage rates based on birth year, we restricted our data set of potential anglers who fish under a spousal license to only married women. To create this data set, we applied

[2] In Minnesota, anglers have four spousal license options: angling combination license, conservation combination license, sports combination license, and the combination super sports license. At a minimum, all four licenses include fishing rights for both license holders while the combination licenses also include hunting access for the primary license holder.
[3] In Wisconsin, anglers have one spousal license option: fishing (spousal).
[4] We limited our study to these ages for two reasons. In Minnesota, residents ages 65 and older were not required to purchase a license until 2003 so any licenses sold at those older ages in the years 2000, 2001, and 2002 were voluntarily purchased. In Wisconsin, the cost of an individual senior fishing license drops to $7.00 for ages 65 and older, which is less than half the cost of a spousal fishing license ($31.00 for two people) and results in a notable drop in spousal license sales among seniors ages 65 and up in Wisconsin.
[5] Individuals exempt from purchasing a fishing license based on age, birth year, and other factors (e.g., veteran status) varies by state.

estimates of age-specific marriage rates by sex and for each state (based on Census 2010) to our population of potential anglers who fish under a spousal license. This means that in the spousal license analysis, only married women are included as potential anglers. All data cleaning and analyses were conducted in Stata SE 14.1 (StataCorp 2015).

2.4.2 Data Analysis

Age-period-cohort (APC) models are commonly used by demographers and epidemiologists to describe rates of mortality or incidence of a disease as a function of age, birth year, and time period (Clayton and Schifflers, 1987a; Clayton and Schifflers, 1987b). APC models help clarify the unique, but additive and independent influences of age, period, and birth cohort (birth year) on an individual's likelihood to exhibit a trait or behavior throughout their lives (Sasieni, 2012). APC analysis is the appropriate method of analysis for this study because estimating the impact of birth cohort on likelihood to fish from longitudinal data requires isolating the unique impacts of birth cohort (birth year) from the separate and unique effects of age (at the time fishing license was purchased) and time period (year license was purchased). This is required because these three factors are perfectly collinear (e.g., cohort + age = period, see equation above) and age and/or period effects can confound interpretations, also known as the "age-period-cohort identification problem" (Fannon and Nielsen 2018; Mason and Wolfinger 2002; Yang et al. 2008).

Therefore, we employed Yang et al's (2008) age-period-cohort (APC) model in StataSE 14.1 (Sasieni 2012; StataCorp 2015) to estimate the effects of birth cohort on men and women's fishing participation in Michigan, Minnesota, and Wisconsin over the 17-year period of available fishing license sales and US Census data. The Yang et al. (2008) model includes an intrinsic statistical estimator that controls for the inherent collinearity of age, period, and time, and thus allows us to determine the extent to which fishing participation is driven by the independent effects of birth cohort, age, and time period (Yang et al. 2008). Winkler and Warnke (2013) similarly used Yang et al.'s (2008) APC model to successfully estimate cohort effects among Wisconsin deer hunters (Winkler and Warnke 2013).

Using this model, we estimated the log likelihood that an individual purchased a license between 2000 and 2016 due to their birth cohort. A log likelihood value is generated for each individual cohort from 1940 to 1995. After estimating cohort effects using APC analysis, we then compared the resulting participation likelihood estimates (cohort effects) for each state by birth cohort and, for women, license type (individual and spousal licenses). Using these log likelihood values we can, for instance, compare the cohort effects acting on individuals born in 1950 to the cohort effects acting on individuals born in 1970, and so forth.

2.5 Results

Using fishing license data from 2000 to 2016, we estimated cohort effects for licensed anglers by state, gender, and, for women in Minnesota and Wisconsin, license type (individual or spousal). With respect to our first research question, Do recreational anglers in upper Great Lakes states exhibit cohort effects?, APC analysis results consistently showed that birth cohort is a statistically significant predictor of fishing participation among men and women in all three states (Figures 1-3).

Cohort effects for men varied somewhat by state. In Michigan, men born between 1955 and 1965 were slightly more likely to fish than all other cohorts (Figure 1). This pattern was also observed in for men in Wisconsin (Figure 3). In Minnesota, however, the most likely birth cohorts to fish were men born between 1975 and 1990 (Figure 2). There was also a slightly increased likelihood to fish for Minnesota men born in the mid-1960s, but these cohort effects were less pronounced. These results partially match our hypothesis that men who belong to the Baby Boom generation (born 1946-1964) would be more likely to fish than more recent birth cohorts because Baby Boomers were more socialized into fishing in their formative years (Winkler and Warnke 2013) than more recent birth cohorts.

While women exhibited cohort effects as well, these effects varied by license type, as hypothesized. We expected that older generations of women would be more likely to be licensed under a spousal fishing license than younger born more recently because women belonging to older generations were socialized to view fishing with a spouse or adhering to their spouse's behavior and preferences as more acceptable (Shaw 1994). Women's likelihood to fish under an individual license was highest in more recent generations, with some variation across states. In Michigan, women born after 1985 show greater likelihood to fish in comparison to those born 1965-1985 (Figure 1). In Minnesota, women born since 1976 were more likely to purchase an individual license than prior generations (Figure 2). Wisconsin's results are somewhat different in that late Baby Boomers and early GenXers (born between 1957 and 1967) show increased likelihood to fish in comparison to those born in the 1940s, 1950s, or 1970s, but still it is more recent generations (born after 1984) who are most likely to fish (Figure 3). Cohort effects among both Minnesota's and Wisconsin's spousal license holders were notably different, with recent generations of women showing a decreased likelihood to purchase a spousal fishing license in comparison to older generations. The most likely generations to fish under a spousal license in Minnesota were born between 1955 and 1985 (Figure 2). In Wisconsin, women born between 1957 and 1990 showed higher likelihoods to fish under a spousal license (Figure 3).

In Figures 1-3, the x-axes represent angler birth cohort, or the year they were born. The y-axes represent a log likelihood coefficient, meaning that the greater the difference from zero (positive or negative) a coefficient value is, the larger the cohort effect on the likelihood of an individual to purchase a fishing license. Values above zero indicate an increased likelihood, while values below zero indicate a decreased likelihood

(based on birth cohort and controlling for age and time period). Note that likelihood values should be compared to other points on the same line (e.g. within gender) rather than between groups (e.g. males to females or individual to spousal). 95% confidence intervals are indicated by the lighter colored lines associated with the primary estimate lines.

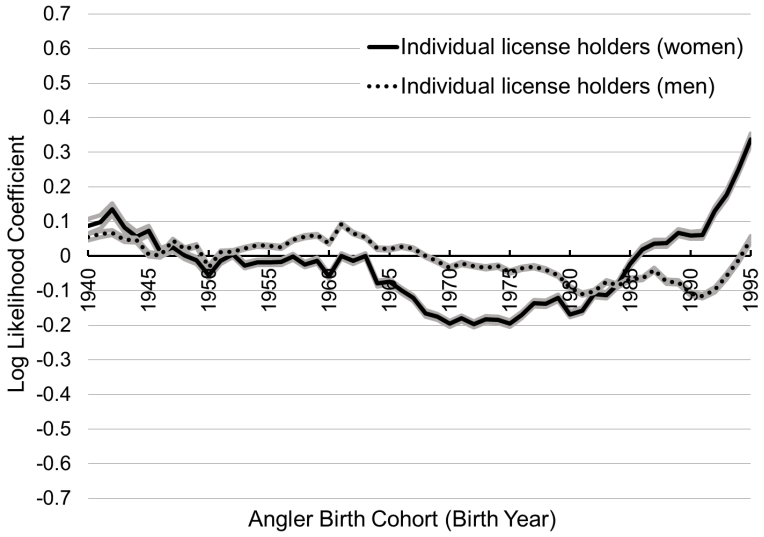

Figure 1. Cohort effects among Michigan anglers for individual license holders only (women and men).

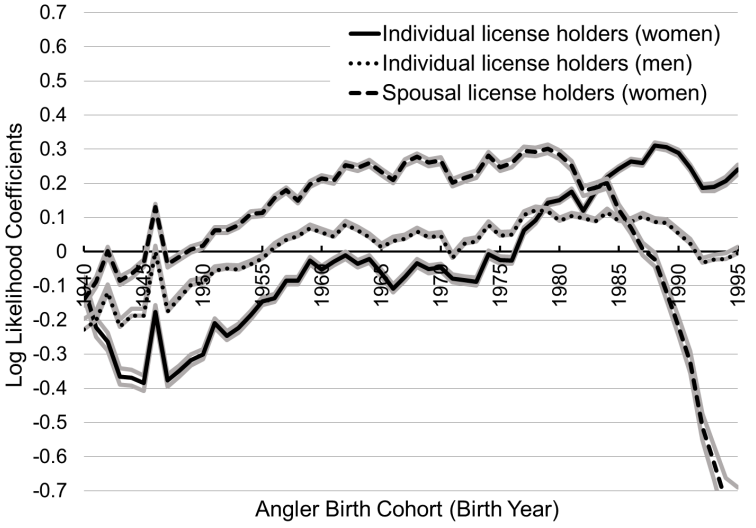

Figure 2. Cohort effects among Minnesota anglers for individual license holders (women and men) and spousal license holders (women only).

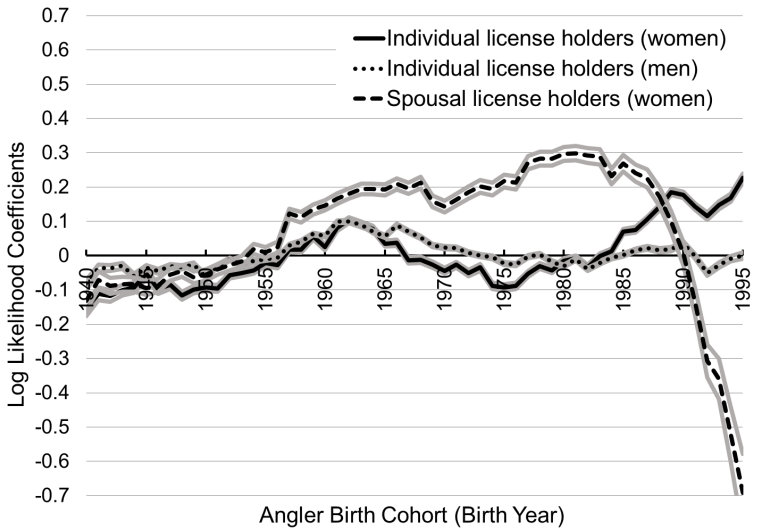

Figure 3. Cohort effects among female and male anglers in Wisconsin for individual license holders (women and men) and spousal license holders (women only).

We can make assumptions about age effects and period effects in order to show how these identified cohort effects influence fishing behavior for a hypothetical population of women throughout their lives. To demonstrate how these varying cohort effects impact women who were born in different years when they are at the same age (e.g., a 40-year old woman born in 1955 versus a 40-year old woman born in 1975), we translated the log likelihood values shown in Figures 1-3 for women into probabilities that reflect how age-specific fishing participation varies by cohort (Table 2). The probabilities shown assume there is no relevant period effect, holding age constant at 40-years, and assume these women are subject to the cohort effects we found for women born each decade between 1945 and 1995. In Minnesota for example, the model predicts that for a hypothetical group of 40-year old women born in 1945, only 3.6% would fish under an individual fishing license in any given year. This compares to 40-year old women exposed to cohort effects from 1965 where 5.3% would fish, and to those exposed to 1995 cohort effects where 7.4% would fish. For spousal licenses, about 24% of Minnesota women born in 1945 would fish, in comparison to 31% born in 1965 or 1975 (peak years) and only 12% of those born in 1995.

Table 2. Probability (as a percent) that a 40-year old woman born in a given year would purchase a fishing license, assuming there are no period effects. The higher the probability, the stronger the cohort effects for that specific birth cohort. Results are organized by license type (individual or spousal) and state. Angler Birth Cohort refers to angler year of birth (1945, 1955, 1965, 1975, 1985, or 1995).

Angler Birth Cohort	Individual Fishing License			Spousal Fishing License	
	Michigan	Minnesota	Wisconsin	Minnesota	Wisconsin
1945	6.2	3.6	7.8	24.0	9.6
1955	5.7	4.8	8.1	27.5	10.6
1965	5.4	5.3	8.6	30.9	12.6
1975	4.9	5.5	7.5	31.3	12.9
1985	5.7	7.4	8.9	27.8	13.5
1995	7.8	7.4	10.5	12.2	5.6

2.6 Discussion

In this study we use age-period-cohort analysis of fishing license and US Census data from three Great Lakes states to identify cohort effects on men and women's fishing participation. By estimating the independent effects of birth cohort (birth year) on men and women's likelihood to purchase a license, we demonstrate that cohort effects influence fishing participation and that these effects act differently on men and women. Altogether, these findings have long-term implications for recreational fisheries management as older angler cohorts are replaced by more recent angler cohorts. These results also provide evidence that improving our understanding of how gender and birth cohort intersect to drive socialization into fishing is vital to conducting more informed recreational fishing engagement programs.

2.6.1 Cohort Theory and Gender Socialization

Cohort and gender socialization theories can help explain why people born into different birth cohorts may begin fishing and if they remain active anglers throughout their lives. They can also explain why we found cohort-driven differences between men and women who fish in Michigan, Minnesota, and Wisconsin. For men, we found that cohort effects are strongest for anglers born between 1955 and 1965 or men born between 1975 and 1990, depending on the state. This partially supports our hypothesis that anglers belonging to the Baby Boomer generation (born between 1946-1964) would be more likely to fish than cohorts belonging to more recent generations. Baby Boomer men have consistently participated in hunting at higher rates than more recent generations (Winkler and Warnke 2013), and our results confirm this trend among male anglers. Wildlife-based recreation activities were culturally important for White, male Baby Boomers came of age during a time when wildlife-based recreation activities like hunting and fishing were both culturally important pastimes and masculinized outdoor pursuits (Winkler and Warnke 2013; Taylor 2016). It is therefore likely that the Baby Boomers we observed cohort effects for were socialized to fish more than other birth cohorts. Our finding that men born between 1975 and 1990 in one of our study states, Minnesota, could be related to multi-generational effects of Baby Boomers socializing their own children into fishing. While socialization in fishing is understudied, this would support the findings of Bryd,

Lee, and Olynk Widmar (2017) who found that individuals who know hunters personally are more likely to find hunting socially acceptable.

We also found cohort effects among women, and these effects varied by fishing license type. When available, a spousal (married couples) fishing license was more preferred for women born between 1955-1970, whereas more recent birth cohorts of women (born since 1980) were more likely to purchase a fishing license independent from a spouse than their predecessors. We likely found these substantive differences between individual and spousal fishing license holders because different generations of women faced different gender-based constraints and norms as young adults that drive cohort behavior throughout their lives. These experiences are examples of how women are socialized into fishing based on their gender. As expected given recently observed increases in women's fishing participation, an increased visibility of women in fishing, and sport equity policies like Title IX, more recent cohorts of women were socialized under a social context where fishing is generally seen as more acceptable to women than in the past. These socialization dynamics are complex, however, as illustrated by our findings that women born in the 1950s and 1960s were more likely to fish under a spousal license. Although older generations of women have experienced strong sanctions against participating in what were viewed as masculine recreational activities reserved for men (Shaw 1994), some women may prefer to fish with their spouse because they were influenced more by traditional marriage roles and/or because their spouse typically purchases their fishing licenses. In this way, the spousal fishing license option could be serving as a facilitator to entering the sport of fishing for some (Raymore, 2002).

2.6.2 Study Strengths and Limitations

One of this study's strengths is that our data represent a complete record of fishing participation in three states with strong fishing-based economies and outdoor recreation cultures. These data capture behavior (purchasing the license) and behavioral intentions (intending to fish), rather than the more common survey sample of reported attitudes, intentions, or recollections. For this reason, we feel confident that there are significant differences in likelihood to fish for both men and women based on birth cohort, and that birth cohort also influences how individuals participate in recreational fishing in these three Great Lakes states. Our study is also limited in that we don't have additional data about what motivates individuals to purchase a fishing license, or how these processes may vary by gender and/or birth cohort. Despite these limitations, our findings are consistent with what we would expect considering the relationship between cohort and gender socialization theories regarding the importance of socialization and early life experiences and how gender expectations and norms change over time. Without further study, we can't say for certain whether the patterns we observe here are necessarily related to changing gender constructions.

This study also addresses one of the criticisms of gender and environment studies, which is that, even in gender and environment studies, women are often treated as a single group with the same attitudes and actions (Arora-Jonsson 2017). Understanding

what motivates and constrains sub-groups of women in a recreational fishing context can inform more nuanced and targeted outreach programs, management decisions, and policy goals. When gender is used as a proxy term for women in policymaking, women are often conceptualized as a single group instead of a varied and diverse group of smaller groups or individuals with varying attitudes, actions, and reactions (Arora-Jonsson 2017). This homogenization and avoidance of context assumes that environments mean the same thing to different groups of people and can have the effect of perpetuating stereotypes about both men and women (Arora-Jonsson 2017). It is important that future studies continue to avoid conceptualizing women and men as a single group instead of a varied and diverse group of smaller groups or "typologies" of individuals with varying attitudes, actions, and reactions (Arora-Jonsson 2017; Metcalf et al. 2015).

A long-standing issue within human dimensions of recreational fishing studies is that gender is used interchangeably with sex, which omits the underlying and nuanced aspects of gender as a more fluid concept (Kawarazuka et al. 2017). This practice is also prevalent in management contexts. The binary designations "male" and "female" are incorporated into the licensing system when license holders' "sex" is entered into a tracking system by fishing license retailers at the point of sale based on an individual's driver's license. This both limits our ability to draw conclusions about how gendered processes impact women as well as forces the assumption that "female" license holders identify as women only. We also lack sufficient information on the impact of gender and/or cohort on same-sex or same-gender couples or non-binary individuals. Despite these limitations, this study provides a starting point for further sociodemographic study of recreational anglers in the North American context.

2.6.3 Implications and Recommendations

From a management standpoint, understanding how gender and cohort motivate and/or constrain sub-groups of anglers and influence their likelihood of participating in recreational fishing can directly inform licensing structure policy decisions, angler recruitment, and stakeholder engagement practices. Pervasive gender norms and social expectations associated with outdoor activities, like recreational fishing, change over time in ways that both support and reinforce women's empowerment and the masculinity of sport (Nightingale 2016; Schroeder et al. 2006; Toth and Brown 1997; Warren and Erkal 1997). Although social changes creating more equal opportunity across genders may contribute to increased license sales for women who fish, gendered social norms continue to influence both men and women's participation in this sport.

Gender socialization can have the effect of constraining women's participation in outdoor recreation by both implicitly and explicitly implying that these activities are inappropriate or even dangerous for women (Henderson 2013; Freysinger, Shaw, Henderson and Bialeschki 2013b) or making fishing and hunting less accessible to men who don't identify with highly masculinized cultural expectations. Despite this and the growing emphasis on reaching new, and often younger, wildlife recreation stakeholders,

we have little information about how gender-related social processes, including socialization early in life, influences lifelong hunting and fishing behavior.

Inclusive and effective recreational fishing outreach programs require a deeper understanding of how gender-related social factors constrain or facilitate fishing participation. This can help fisheries management agencies prioritize specific R3 policies, justify spending, and build better relationships with anglers (Schroeder, Fulton, Currie, and Goeman 2006; Thayer and Loftus 2012). Programs aimed at engaging with women and creating new anglers need to recognize and understand the particular contexts that are unique to women in the context of fishing, and also that not all women have the same experiences, such as how they enter the sport and the social factors that encourage or constrain their continued participation (Connelly, Keeler, and Knuth 2013; Schroeder et al. 2008). Our findings suggest that generational differences in women's likelihood to fish in states like Minnesota and Wisconsin that offer spousal licenses could be benefiting from gendered expectations that continue to drive the behavior of specific cohorts, namely women from older generations who could be more likely to fish with a spouse or at least be initiated into the sport by a spouse. Fisheries management agencies could adjust their recruitment strategies and provide different opportunities for unique subgroups of women. States that aim to attract more women to the sport of fishing could consider adding a spousal or family fishing license option for women who prefer to enter the sport with a spouse or multi-task caregiving with outdoor recreation.

2.6.4 Conclusion

Many intersecting factors and processes ultimately shape how individuals interact with the outdoors, position themselves within nature, and recreate (Henderson and Gibson 2013; Hunt and Ditton 2001; Lee, Scott, and Floyd 2001; Shaw 1994), and future studies of anglers of all genders should incorporate a more intersectional perspective to truly begin to understand how gender interacts with and is influenced by additional demographic, social, and cultural factors. White men have been the predominant recreational fishing archetype for decades, and more research on women and other growing minority groups, including people of color and young men, is needed in order to best serve their needs, understand what draws them to the sport (or constrains them from participating), and translate the benefits of fishing to new participants (Anderson and Loomis 2005). Our findings support further exploration of sub-groups of anglers and how they are affected by changing gender constructions in order to better understand this multifaceted and growing group of recreational fishing stakeholders.

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3 "*It's not about the fish*": Women's Experiences in a Gendered Recreation Landscape

3.1 Abstract

This study applies ecofeminist theory and participatory research to study women's recreational fishing experiences. Using photovoice and grounded theory, we analyze the meanings 15 Michigan women ascribe to their fishing experiences and how they negotiate the gendered assumptions that are embedded within sport-fishing cultures. The women included in this study identified three overarching, and interrelated processes that describe the social context of their fishing experiences and their engagement in the sport. First, fishing facilitated a strong sense of self and kinship with nature and water bodies among these women, and they often described their experiences as core to their identity and well-being. Second, fishing required the participants to navigate gender norms to stay active in the sport, and this sometimes required resisting the dominant gender discourse while simultaneously gaining a sense of strength, independence, and empowerment as they overcome gendered expectations and related self-perceptions. The combination of individual photography, facilitated group discussion, and community presentations also provided a means for participants to connect with each other and their social circles and by doing so brought new narratives to light. Employing photovoice as a feminist participatory methodology can help women build new connections with each other and their social networks and illuminate valuable yet previously untold leisure stories and narratives.

3.2 Introduction

A significant contribution of feminist theory to leisure studies is the conceptualization of leisure spaces as embedded within social institutions and cultural practices that constitute and are constituted by gender (Aitchison, 2013; Brace-Govan, 2010; Cooky, 2018). Gendered norms and expectations mediate recreation behaviors and outcomes by influencing socialization into specific activities, likelihood to participate over the life course, how leisure behaviors are perceived and portrayed by others, and the self-perceptions and meanings participants ascribe to their experiences (Aitchison, 2013; Culp, 1998; Henderson, Bialeschki, Shaw, & Freysinger, 1989). For outdoor recreationists, normative expectations and social interactions associated with perceived biological sex result in the social act of both "doing" and "undoing" gender (Butler, 1990; West & Zimmerman, 1987; 2009) and create gendered human-environment interactions and relationships (Arora-Jonsson, 2014; Arora-Jonsson, 2017; Culp, 1998).

Ecofeminist theory is well-suited to studying women's outdoor experiences and making women's experiences more visible (Brace-Govan, 2010; Overholt & Ewert, 2015). Ecofeminism studies how the exploitation of nature and exploitation of women are interlinked processes controlled by patriarchy, or how those in power construct, define,

and value nature and women's relationships with nature (Warren & Erkal, 1997). Women face many gendered constraints to accessing outdoor recreation activities and being acknowledged in leisure spaces, including limited time due to expectations of family responsibilities, socialization to prefer or avoid certain activities, and broader cultural signals about what is and isn't appropriate for women (Aitchison, 2013; Culp, 1998; Ghimire, Green, Poudyal, & Cordell, 2014; Matthews, 2018).

Women's individual identities intersect with broader sport-specific culture to determine motivations to fish, the meanings women associate with their fishing experiences, and the process-oriented benefits they derive from fishing (Ghimire et al., 2014; Lee & Floyd, 2001, Toth & Brown, 1997). Most existing studies of recreational fishing participants, or anglers, are generally male-biased and use "gender" as a substitute for binary sex (Dargitz, 1988; Kuehn, Luzadis, & Brincka, 2013; Kuehn, Luzadis, & Brincka, 2017; Stensland, Aas, & Mehmetoglu, 2017). These studies typically rely on surveys and, while they do provide some insights into motivations for fishing based on reported gender identity, cannot account for more nuanced gendered processes and associated gendered experiences. Qualitative and visual methods can provide deep context for gender and leisure studies, including how recreation experiences impact individual's self-perceptions, their relationships with others and nature, and their own constructions of gender (Annear et al., 2014; Johnson, 2014; Kuehn, Dawson, & Hoffman, 2006; Mitchell, 2011). However, qualitative studies of women in a sport-fishing context are largely absent from outdoor recreation, leisure, and human dimensions of wildlife studies (Kuehn, Dawson, & Hoffman, 2006 & Toth and Brown, 1997 are exceptions).

In this study, we employed a participatory research approach called photovoice to center the lived experiences of 15 Michigan women who participate in recreational fishing and identify distinct meaning-making process that shape their interactions with themselves, the environment, and other people. This work extends previous feminist leisure research to a consumptive outdoor recreation context in order to better understand the meanings women derive from recreational fishing and identify how women navigate external and internal gendered expectations. Understanding these processes and their consequences for women can shed light on how marginalized groups navigate recreation spaces.

3.3 Literature Review

3.3.1 Ecofeminism and Leisure

Ecofeminism acknowledges the connection between the patriarchal construction of nature as a "wild" entity in need of taming with the subsequent desire to control and oppress natural resources, Indigenous peoples, and women and non-binary people within systems of colonialism, capitalism, and patriarchy (Banerjee & Mayerfeld Bell, 2007; Warren & Erkal, 1997). Those in power control access to outdoor spaces and resources,

including systems and networks of knowledge (Banerjee & Mayerfeld Bell, 2007; Warren, 1997). Leisure scholars have applied these ideas to examine gendered constraints to recreation, including the underrepresentation of women in leisure research and cultural outlets and their constraints in participation in what are viewed as traditionally masculine leisure pursuits (Hargreaves, 1994; Mansfield, Caudwell, Wheaton, & Watson, 2018).

Women have been negotiating external and related internal constraints to participating in sport as long as there have been male-dominated sports cultures and broader societal gender expectations (Matthews, 2018). Sports cultures can perpetuate male dominance through strongly embedded notions of male competence, superiority that inferiorizes women and their skills and isolates them from and within leisure spaces (Bryson, 1983; Hargreaves, 1994). Even when women have the social and financial capital to participate in sport, the masculinization of sporting in public can be intimidating and difficult to negotiate or even broach (Hargreaves, 1994; McKenzie, 2005). Women's attitudes towards sport are directly influenced by gender dynamics in their home, including the unequal division of labor in hetero-partnerships and women acting in the interest of men's leisure rather than their own (Hargreaves, 1994). In contrast, sports have the potential to empower the marginalized (Cooky, 2018) and leisure can provide a space to both embody and resist gender discourses (Freysinger, Shaw, Henderson, & Bialeschki, 2013; Mansfield et al., 2018).

From a broader cultural perspective, the "symbolic annihilation" of women in sport, or the mainstream media's practice of ignoring women or portraying them in stereotypical gender roles, impacts our cultural understandings of athleticism and what it means to be a woman (Brace-Govan, 2010; Cooky, 2018; Hargreaves, 1994). There remains a distinct lack of gender equality across online, print, and televised media outlets in general, as the mainstream media has resisted broad cultural shifts associated with social movements of the past several decades and women continue to be sexualized in sports media (Cooky, 2018; Hargreaves, 1994). Women are given significantly less coverage in mainstream sports media outlets than men, and media consumers receive clear messages "about which sports are appropriate, accepted and valued for female athletes" (Cooky, 2018, p. 137). The passing of Title IX legislation in the United States in 1972 came with the expectation that the proliferation of girls' and women's participation in sports would alter the sports media landscape (Cooky, 2018). However, after exploring portrayals of women athletes in Sports Illustrated pre- and post-Title IX, Kane (1988) found that women were only more likely to be featured in athletic roles than non-athletic roles post Title IX within "sex-appropriate" sports.

3.3.2 Women in Sport-Fishing

A combination of broader cultural forces and lived experiences create a leisure context that requires women to navigate social processes on the basis of gendered systems and arguably puts them at-risk of having limited, constrained, or even negative fishing experiences (Bittman & Wajcman, 2000; Morris, 1991; Yerkes, Roeters, & Baxter, 2018). The gendered context of fishing stems from the women's early social

exclusion from sport-fishing and hunting (Smith, 2003) and the continued masculinization of hunting and fishing in the 20th and 21st centuries (McKenzie, 2005). Even now, current sport-fishing media outlets underrepresent and stereotype women (Carini & Weber, 2017; Gaynor, Frawley, & Máñez, 2016), and women are also vastly underrepresented among recreational fishing participants (Author 1 & Author Redacted, Year; US FWS 2013), which means women who do fish must contend with being a minority in a male-dominated sport.

Women are mentioned and portrayed less frequently than men in sport-fishing media outlets (Gaynor et al., 2016) and, when they are included, are often depicted in an overly sexualized manner, referenced for their physical beauty, or "portrayed as obstacles to fishing for men" (Carini & Weber, 2017, p. 45). Women are also sometimes characterized as sidekicks to a male counterpart, which "reinforces fishing as a male-centric activity, particularly when there were virtually no instances of women fishing alone or with other women" and could serve to dissuade women from fishing (Carini & Weber, 2017). This disparate representation of women in outdoor recreation and fishing-specific media coverage continues to masculinize the sport (Carini & Weber, 2017; Gaynor et al., 2016). In addition to uneven representation of women in sport-specific outlets like magazines, websites, and television, women's fishing experiences and personal narratives are also rarely shared and often overlooked. Foggia's (1995) history of women in 20th century North American sport-fishing and Morris's (1998) anthology of women's personal fishing stories are rare examples of fishing stories written by women.

Visibility and social inclusion impact women's leisure experiences because the gender-based meanings women participate in recreational fishing are influenced by local geographic context and the social groups embedded within and influenced by local subcultures (Henderson & Gibson, 2013; Toth & Brown, 1997). Social inclusion is important because it determines entry and persistence in outdoor recreation pursuits, how people spend their leisure time, and how they build relationships with natural spaces and resources (Aitchison, 2003; McDonough, 2013). Most people learn to fish through their family where traditional views of gender norms can prevent young women from learning to fish (Toth & Brown, 1997). Women sometimes avoid outdoor recreation activities like fishing because of the perception that they are inappropriate or even dangerous for women (Lee & Floyd, 2001; Lee, Graefe, & Li, 2007) or because they may put their family obligations before their own leisure time (Henderson & Dialeschki, 1991).

Despite these factors, the women who persist in this challenging leisure landscape likely derive many benefits from recreational fishing. Outdoor leisure experiences can facilitate individual and group empowerment through the resistance of traditional gender norms, connecting to one's self, and building strong social relationships and friendships (Culp, 1998; Henderson & Gibson, 2013; Toth & Brown, 1997). Outdoor leisure is also an avenue for women to connect with themselves and others, improve their physical health and spiritual well-being, and connect and reaffirm their relationships with nature (Andre, Williams, Schwartz, & Bullard, 2017; Buckley, 2018; Cooky, 2018; Fox, 1994).

3.3.3 Photovoice as Feminist Participatory Research

Participatory research holds the philosophy that understanding members of underrepresented communities requires creating or facilitating opportunities for individuals and communities to identify their own concerns, problems, and values and share and describe their experiences in their own language (Fortmann, 2009; Gaventa & Cornwall, 2009). Critically considering whose knowledges are recognized, where and from whom we obtain these knowledges, and how we use them is also a dominant theme of feminist leisure research (Aitchison, 2013; Banerjee & Mayerfeld Bell, 2007; Wheaton, Watson, Mansfield, & Caudwell, 2018). By remaining open to non-theoretical knowledge, participatory research strives to consider and validate the experiences, perceptions, and local expertise within the community where the research is taking place, and therefore shift power relations from researchers to community members (Fortmann, 2009; Gaventa & Cornwall, 2009).

Photovoice originated in the public health field as a way to assess and evaluate women's health concerns, needs, and education through individual photography, written narratives, and group discussion and storytelling (Catalani & Minkler, 2010; Latz, 2017; Wang & Burris, 1997). These outlets give participants the opportunity to share and explain the individual meanings and explanations of social processes that are inaccessible using more quantitative techniques like surveys or structured interviews (Creswell, 2013). Leisure and health researchers have employed photovoice to better understand the leisure experiences of individuals living with mentally and physically impairing diseases (Genoe & Dupuis, 2011; 2013; 2014; Genoe & Zimmer, 2017; Gosselink & Myllykangas, 2007), identify barriers and opportunities for physical movement among underserved communities (Belon, Nieuwendyk, Vallianatos, & Nykiforuk, 2014), and learn how cultural beliefs surrounding gender roles impacted the day to day lives and physical activities for Latina women (D'Alonzoa & Sharma, 2010). Bell (2008, 2015) linked participation in action-oriented photovoice projects to positive outcomes including women's empowerment, the creation of new social networks, and improving connections between citizens and policymakers or those with decision-making power.

Photovoice creates opportunities to analyze the individual and group-level factors, institutions, and physical environments that influence individuals' behavior and beliefs (Latz, 2017). This study draws from an ecofeminist and interpretivist, phenomenological perspective to work with women directly and to understand their worldviews, validate their perspectives, and acknowledge their ways of knowing as valuable. In doing so, we challenge "the assumption that maleness is the norm, and that a male perspective is a neutral and objective point of view" (Aitchison, 2013; Beal, 2018, p. 228). Like other forms of participatory research, photovoice creates opportunities for researchers and community members to collaborate and co-create process-driven knowledge (Acott & Urquhart, 2015) and emphasizes the collective by bringing together individuals who might not otherwise feel empowered to act on an individual level (Bell, 2008; 2015; Latz, 2017). Visual research techniques that incorporate photography and storytelling also bring complex narratives to light, create a new awareness of women's perspectives, and

challenge old tropes (Acott & Urquhart, 2015; Mitchell, 2011). Women are not homogenous, and a visual, feminist participatory approach like photovoice can provide researchers with a framework for avoiding placing their own assumptions on women's leisure experiences and "acquire an authentic understanding of women's needs, desires, opportunities and constraints" (Hargreaves, 1994, p. 11).

3.4 Methods

3.4.1 Case Study Overview

This study took place between June 2018 and June 2019 in two parts of Michigan, USA: the rural Keweenaw Peninsula in Michigan's Upper Peninsula and urban/suburban Metro Detroit region, Both regions provide year-round opportunities for recreational fishing, including competitive fishing events, and showed recent increases in women's fishing participation from 2000 to 2016 (Author 1 & Author Redacted, Year). Michigan, USA. Recreational fishing is essential to Michigan's economy and culture, and recreational fishing takes place on thousands of inland lakes, four of the five Great Lakes, and numerous rivers and creeks (Calantone, Vickery, Wang, & Bengal, 2019). Case studies allow for contextualizing, confirming, disproving, and showing unique cases to understand the operational links between phenomenon (Yin, 2017), including the deep contextualization that lends itself to understanding women's perspectives and experiences (Watson, 2018). We employed a single, revelatory case study design with two embedded units of analysis to observe and analyze a phenomenon that was previously inaccessible to empirical study; in these instances, the descriptive information alone is considered revelatory (Yin, 2017).

3.4.2 Photovoice and Grounded Theory

Photovoice is considered a feminist research method because it commits the researcher to redistributing power to participants by giving them the space to create their own meaningful roles in the research process (Latz, 2017; Wheaton et al., 2018). The process typically includes participant recruitment, an initial group meeting or orientation, time for individual photography, additional group meetings, and a closing meeting or "exhibit" which can take many forms (Latz, 2017). In this study, we recruited participants by contacting existing fishing and natural resources groups by email and phone, advertising broadly online and in printed flyers in public spaces, and snowball sampling after making initial contacts. Interested women contacted the author (Erin Burkett), who then answered potential participants' questions via email or during preliminary one-on-one phone conversations or in-person meetings.

Fifteen of the initial 20 contacts participated throughout the entire course of the project. Eight Keweenaw area participants each attended at least two meetings, with the majority attending three or more. Seven Metro Detroit participants also each attended at least two meetings. These small groups of 5-10 women are ideal for photovoice projects

as the smaller groups and multiple meetings helps build trust and therefore facilitates and strengthens the participants' relationships, storytelling, and project outcomes (Latz, 2017). The women ranged in age from 20-62 years and the majority self-reported as white. An Institutional Review Board approved this study, and all participants gave written permission to share their images, narratives, and identities outside of the small group meetings.

A sequence of at least three facilitated meetings, typically scheduled one-three months apart, were held in each region. Meetings were held on Michigan Technological University's campus in Houghton, Michigan, in public libraries throughout Metro Detroit, and sometimes via conference call during periods the Metro Detroit group was unable to meet in person. The purpose of the initial meetings was to explain introduce the photovoice method, establish participation commitments, allow the participants and researchers to get to know each other better, and begin to establish group goals. Attendees were provided with open-ended questions (e.g., "What does fishing mean to you?" "Why do you fish?") that prompted group discussions and individual photography. In subsequent meetings, participants shared their photos and discussed their meanings as a group. At their request, participants also shared any pre-existing, fishing-related photographs that were meaningful to them. Participants were also asked to create written narratives to supplement their photographs and form photostories (Latz, 2017).

Throughout the project, the researchers facilitated group meetings to help participants explore their ideas and share with each other, rather than guiding the group towards a predetermined theme or research goal. The author (Erin Burkett) facilitated in-person meetings for the groups in both Houghton and Metro Detroit and co-author (Dr. Angie Carter) attended the Houghton meetings. Author 1 set-up and managed group emails to facilitate discussion in-between meetings and sharing of related events. This iterative process of meetings and discussion created space for participants to explore and share their ideas with each other. The study authors both identify as cisgender women, and the first author (Erin Burkett) has fishing experiences and therefore her own firsthand experiences as a woman fishing in Michigan. This is important to note because the authors' positionalities as cisgender women could have the effect of making certain women feeling more or less welcome in the project, and knowledge of fishing could help Author 1 facilitate meetings and understand and reflect on the participants' own stories with an insider (to fishing) perspective.

At the close of the project, each group discussed and determined what they wished to be the final outcome of their work. Keweenaw participants held a group photography exhibit at a local museum and Metro Detroit participants presented to a local sport fishing club. The museum exhibit opening event and closing presentation were both attended by approximately 75 people including family members, friends, others, and state level fisheries managers. Attendees demonstrated a high level of engagement by asking the participants' questions, giving positive feedback, and sharing their own stories with participants and researchers during and after the presentations. Participants' photostories, transcribed group discussions, and researcher observations and analytical memos were all

included in data collection and analyzed using grounded theory as outlined by Charmaz (2006) and aided by NVivo software (QSR International Pty Ltd, n.d.).

Erin Burkett and Dr. Angie Carter analyzed transcripts of group meetings, photo narratives, and participants' reflective comments using grounded theory. Grounded theory is an ongoing, iterative approach that emphasizes continuous interaction between empirical data and existing social theories until clear and stable patterns emerge (Charmaz, 2006). The grounded theory process includes data coding, analytical memoing, and development of a case-specific theory or theories that remains true to, and foregrounds, participants' own voices, meanings, and experiences, rather than relying on predetermined hypotheses or researcher assumptions (Charmaz, 2006; Glaser & Strauss, 1967). Because it emphasizes uncovering and acknowledging participant-level knowledge, grounded theory is cited as a natural fit for analyzing data collected during feminist, participatory research processes, including photovoice (Latz, 2017).

Qualitative coding is the process of assigning labels to sections of text that represent what each section is about; the goal is to categorize, summarize, and account for every piece of data (Charmaz, 2006). Grounded theory coding approaches vary, and in this project we went through two phases: initial coding and focused coding. Both of these steps included what participants said to each other, the captions they wrote to accompany their photographs, and what they said about their own images. The purpose of initial coding was to assign labels to participants' words while staying as close to their own words and interpretations as possible. Focused coding moves the analysis forward by noting the most analytically significant and/or frequent initial codes and using new, higher-level codes to "synthesize and explain larger segments of data" and patterns of process, and comparing individual's experiences, interpretations, and actions (Charmaz, 2006, p. 57). Throughout each stage of coding, the author (Erin Burkett) wrote preliminary analytical notes or "memos" that expanded on codes and included any analytical observations about the data that occurred during coding (Charmaz, 2006). This process of initial coding, focused coding, and memoing is not linear and, at times, working through the focused coding illuminated new ideas and analytical memos that made it possible to return to initial codes that were initially "too implicit to discern" (Charmaz, 2006, p. 58). The co-authors met bi-weekly throughout the project to discuss emergent questions in the research design and compare data coding.

3.5 Findings

Three major process-oriented codes identifying how women navigate their fishing experiences emerged from the analysis. First, recreational fishing provides these women with a means to connect to themselves and nature through challenging yet spiritually uplifting outdoor experiences. This finding partially aligns with previous studies showing that appreciating nature is important to anglers (Kuehn, Luzadis, & Brincka, 2013), but goes further by stressing more personal, intimate connections with nature than close-ended survey responses could reveal. The emergence of themes of independence and connecting with self also contrasts somewhat to studies that pointed to social reasons for

fishing as the most salient for women (Kuehn, Dawnson, & Hoffman, 2006). Second, these women frequently negotiate and overcome what Bryson (1983) identified as sport's ability to perpetuate male dominance through ritualized notions of "male competence and superiority" and the "inferiorisation of women and their skills" (p. 413) to begin fishing, continue to participate, and bolster their confidence. And third, the participatory photovoice process facilitated the emergence of previously unacknowledged histories and new self-reflections for these women and other women in their social networks. Although these three processes are presented separately below, recreational anglers can have a hard time separating fishing's many interwoven and non-discrete meanings (Toth & Brown, 1997), and we found that these meanings and processes were often highly interwoven and rarely, if ever, working in isolation.

3.5.1 "It's not about the fish": Finding Meaning and Connection Through Recreational Fishing

Recreational fishing facilitated a strong sense of self among these women, and they often described their experiences as core to their identity and well-being. The explicit mention of water - being near it, on it, and having multiple sensory experiences with water and/or "nature" was a major source of self-identification:

> Sometimes, I think for some people more than others, water is an essential element to our well-being. [...] There's earth, water, air, a basic.. I'm not so fond of flying, there's people who are afraid of water. Versus I need water. It does something for me that I can't even describe, but I'm a water person. And so part of it is just being on the water. […] I think that's where I feel myself the most, is with water whether it's in a boat or sitting next to a river or whatever. That's me. I'm a water person. And so it really restores my connection with me. – Jane

> I liked what you said there too though about just being there at the water. I love being there watching the water, smelling the water, I love seeing the birds or listening to like I said the loons. I love it when the loons start up. It's just being by the water that is awesome too. - Pamela

As these quotes show, multi-sensory outdoor leisure experiences can provoke powerful emotional and spiritual reactions (Lisahunter & Emerald, 2016; Urry, 1999). The women in this project also frequently described fishing as a "getaway" to temporarily alter or escape their daily routine and "be in the moment":

> I really like that it gives me a reason to change my lifestyle. We have this thing in the day and age that we're in that like we have to constantly keep up and you have to be on your electronics and you have to check your email and you have to check your texts and you connect to everybody. So to me, when we put up our whitewall there's no service. I don't connect to anybody, and I don't care. And there's times I'll tell people that we're out there and my phone's just off because it's like I get to have two completely different lifestyles. Not that I dislike my life, but I dislike being connected, and I enjoy being disconnected to the world. - Christine

> The most effective way that I am able to escape the chaos of life is to immerse myself in the depths of wilderness. It's a form of meditation for me. I close my eyes, take a deep breath of fresh air, and listen to the silence. - Michelle

> The main objective is to leave everything else and connect with the nature that's a part of me. To bring up that, that's my true self. Is in nature. - Jane

While a previous study of fishing socialization found that women fish mainly for social reasons (Kuehn et al. 2006), these women are exhibiting the opposite – they fish for solitude or to disconnect from others and societal pressures. Some women will fish alone, or to be alone, and that the actual act of fishing isn't necessarily a social experience even though they feel connected to a broader fishing culture.

While they did not explicitly view this as a gendered behavior, the women also used fishing as an excuse to explore new outdoor spaces when their outdoor-related interests were questioned by friends and family:

> For me it really is an excuse to get out. You know it's funny I remember being younger and trying to explain to my friends and family that I just want to go be in the woods and they all look at me, but if I say I'm going fishing then it's, Oh! Okay cool. You know what I mean? In some ways it can just let you off the hook to be free, out in the woods. - Barb

The above quote also reflects the participant's need to justify to others why she would spend time in the outdoors. Simply wanting to get out and enjoy nature or observe wildlife wasn't enough of a reason or explanation, perhaps because it is difficult to put into words what personal, nature-based experiences mean to others.

3.5.2 "It was terrible being the only woman there": Overcoming Gendered Expectations

Leisure spaces can both reinforce gender norms as well as provide opportunities to resist gender discourses (Mansfield et al., 2018), and the participants' stories reflected both these processes. Fishing simultaneously subjected women to gendered expectations and stereotypes and created a space for them to resist these subjugations and develop their own sense of empowerment both while fishing and in other aspects of their lives. Fishing clubs created a unique setting for gendered processes to both negatively and positively impact women's fishing-related experiences. The women who were current club members repeatedly spoke about how they enjoyed being a part of an active organization, even if they previously felt unwelcome or had to navigate being a woman in a male-dominated social setting. One participant described her personal journey from being an outsider to eventually gaining respect and assuming a club leadership position. Despite being an experienced angler who fished her entire life, she still had to negotiate others' assumption that, as a young woman, she didn't know enough:

> My first high school job was working retail, and my old boss used to love fishing on the weekends. And he told me he wanted me to come to this and just hang out and see if I liked it. It was terrible being the only woman there. Everybody looks at you like this girl doesn't know what she's talking about, doesn't know what she's doing. And then they finally heard what I had to say, and now I'm the first board member that's a female. So I guess they took a liking to me. - Heather

When Cheryl proudly described her fishing boat, Sophia immediately shared a story of being refused to join a fellow fishing club member's boat because she was a woman. In this way, the interactive process of photovoice elicited memories and stories from other women in the group and provided important validation of their experiences through emergent discussions within the group. Cheryl agreed that men in her fishing club avoid allowing women in their boats:

> I want to say that I would have loved being on your boat because I tried getting on other guys' boats in that same club, and one of them was like, well I'm sorry we don't take women on our boats because… the toilet situation. And I'm like, I can hold my pee, it's fine. But I think it just, they just didn't want me on that boat for whatever reason. - Sophia

> A lot of guys in our fishing club just don't want women on their boat. We have cooties or something. - Cheryl

As illustrated above, existing social networks to engage in fishing may or may not be welcoming for women. Kuehn et al. (2006) also found that women's participation in fishing is sometimes negatively impacted by a lack of social support.

In contrast, the following passage shows that women sometimes leverage their own gendered assumptions to get what they want when they are among the minority. When she became the club president, Cheryl leveraged her position as a woman organizing a male-dominated fishing club as a way to get men who were not used to strong leadership from a woman to help her with new club projects. She even offered advice to the younger woman (Heather, quoted above) who was a newer board member of a different club:

> I mean just I'd be in the club and turned it from, you know when they first, when I first got in there, their treasury at the end of the year was like $89, and then after I took over the presidency and ran it for three years, when I left the presidency, they had almost $21,000 in the bank to donate to different fish charities and stuff like that because I, the guys didn't know how to say no to me, you know, and I'd ask them to do something or help me run something or I came up with some different fundraisers and stuff. And they just don't know how to say no when you, when you go up and say, listen, I really need your help. They're like, uh, okay. You're on your way, if you're a board member now, you'll most likely in the next few years end up being president because they'll need somebody that's got their head together and knows how to be organized. And that's what most of the men are missing. - Cheryl

In her own way, Cheryl is simultaneously reinforcing gender stereotypes about both women and men and recommending that women take advantage of these "inherent" qualities to be a productive leader. In contrast, other women acknowledged that overcoming social constraints helped them build confidence, pride, and a sense of independence as they pushed themselves beyond their social and physical comfort zones and resisted what Hargreaves (1994) termed "normative expressions of femininity" (p. 450):

> When I first started fishing I was very like, not like insecure, but if there were other people around I'm like what if they know that I don't know what I'm doing? And, what if this net is too big? What if it's too small? And like, my set up. They don't have bobbers, why do I have a bobber? And like, over the years, and it's probably something that as you get older you just literally don't care, but I love just being able to pull up somewhere and back my kayak in, or fish off a dock or whatever, and just be like, it doesn't matter. There's kind of no rules, but I have like this new confidence about myself whether it's outdoors or indoors even that it's like, YES. And then when you do get a fish that even boosts it more. Now whether you keep it, don't keep it, small, big, doesn't matter. - Jessica

The idea that other anglers are observing and judging women as they fish came up repeatedly in group conversations. One participant enjoyed proving her boyfriend wrong when he assumed she didn't know how to fish, while another participant embraced and enjoyed being a minority in a male-dominated sport when she describes camping and fishing with a women's-only group of friends:

> Sometimes we didn't catch a damn thing, but we just had a good time, got some sun, and got a lot of anglers looking at us. Like, what are those two ladies out there doing that by themselves? You know, we liked that, that they had those reactions to us. - Cheryl

Here, Cheryl relates the feeling of enjoying or even relishing reactions of surprise that she and another woman were out fishing by themselves and having a good time. Not caring what others think is one form of resisting social expectations women face in a sport that often places you in close proximity to others engaging in the sport. Others examples of interacting with other anglers ranged from receiving stares from strangers to being subject to "mansplaining" by male relatives.

3.5.3 "I would've never even knew that she was a fisherman": Discovering Untold Stories

The sharing or reflection stages of photovoice, where images are shared with others and interpreted by the group during photowalks, helped create a space where the participants could recognize and form their values and develop new narratives (Acott & Urquhart, 2015). The following passage demonstrates how some women who fish are socially and culturally isolated from one another, even within their own families. In this

instance, a participant discovered that her great aunt was actually an avid angler in her youth, but until sharing this project with her aunt, the participant had never known about her aunt's passion for fishing:

> Barb: And because of this project, this is my great aunt, and I found out that she was a fishing fanatic in her early life, and she told this wonderful story about fishing over on the eastern side and having to share this fish with this bear that was following her in the 60s. […]
>
> Researcher: So you just heard that story?
>
> Barb: I just heard that story. […] So that was kinda cool that was totally from this project. I would've never even knew that she was a fisherman, we never spoke about it before.

Similarly, another participant discussed how participating in the project prompted her to reflect on her existing habit of sharing her fishing and other outdoor experiences with her 94-year old grandmother:

> When she stopped going to our family camp a few years ago, […] is I started just taking pictures for her, because I visit her, so I have to show her on my phone. And you know sunsets, or fish, or if we're out bird hunting or whatever. And she just loves that, and she always tells me, if I was just fifteen years younger I'd come with you, and I'm like yeah I hope when I'm 80 I'm still out doing stuff. But something about this photo project made me think of all the things I take pictures of for her so that she can kind of, she's not really there with me but you know she likes to see all that stuff that she can't really do anymore. - Jane

Sharing her own experiences with her grandmother made Jane reflect and appreciate her own experiences even more. Other examples of cross-generational exchange arose throughout these meetings as the women shared examples of connecting or reconnecting with other female family members, including mothers, daughters, aunts, and grandmothers, through their participation in this project. The bittersweet nature of cross-generational differences in particular emerged during one discussion when an older participant commented that fisheries-related careers were inaccessible to women when she was younger. Her comment was in reaction to two younger participants sharing that their passion for fishing motivated their decisions to pursue careers in fisheries management:

> When I was your guys' age, I mean, I know there, there was no women in that line of work at all, so I ended up being a hairdresser, which is fine, but I don't get outside much. I do have gone fishing sign though. I put on my mirror [in the hair salon] when I'm out fishing. - Cheryl

Although the participants demonstrated interest and enthusiasm throughout the project, employing a visual method like photovoice also presented some challenges and limitations. Remembering to bring their phones with them or to take pictures throughout

their fishing experiences was difficult for some of the participants because they typically did not have a camera or phone with them while fishing, especially those who considered fishing a means to excuse. Beyond incorporating a camera into an activity where they didn't previously use it, one participant found it particularly difficult to write down narratives, or captions, to go with their pictures in preparation for the public exhibit:

> Several times I sat down to give more explanation to the photos and really couldn't do it. [...] The only thing I can figure as I examine my creative reluctance to adding text, is twofold: 1. being a visual artist I think the photos should stand on their own without the need for text, and 2. the more I thought about it, I have always cherished the anonymity that fishing has afforded me...would rather play the text info part close to the chest and not share it with the public, if you know what I mean. – Barb

This highlights the challenge of uncovering deeply personal meanings individuals associate with their outdoor experiences. Despite these constraints, the project created a unique opportunity for the women to share and reflect on their fishing experiences.

3.6 Conclusion

This paper uses a participatory feminist research approach to examine and contextualize 15 Michigan women's recreational fishing experiences. While this study is not representative of all women anglers, it serves as a helpful starting point for understanding the issues socially marginalized leisure participants face. Wildlife-associated outdoor pursuits like fishing and hunting are rooted in long-standing, gender-based societal expectations and histories that overwhelmingly center the male experience and perpetuate the exclusion of women and other marginalized groups from the sport and limited the visibility of non-male experiences (Mckenzie, 2005; Toth & Brown, 1997). Women are largely omitted from cultural outlets that signal to potential outdoor recreationists and society at large that women do not belong in recreational fishing spaces. Additionally, women are often conceptualized as a single group instead of a varied and diverse group of smaller groups or individuals with varying attitudes, actions, and reactions (Arora-Jonsson, 2017; Toth & Brown, 1997). This homogenization and avoidance of context can have the effect of perpetuating stereotypes and assuming that environments mean the same thing to different groups of people (Arora-Jonsson, 2017). We found that some women use their own internalized gendered assumptions to subvert gender narratives, while others resisted typical notions of what is gender-appropriate in order to enjoy a sport they love.

The complex nature of outdoor recreation experiences challenges researchers to invoke creative means to understand participant narratives and meanings, and the photovoice process demonstrated how, if given the opportunity, socially and culturally marginalized leisure participants can actively construct their own meanings about their relationships with outdoor leisure experiences, nature, and themselves. The importance of the visual aspect of this project was especially salient during the final public

presentations. In these settings, participants were able to present themselves publically as anglers on their own terms, as opposed to being misrepresented by sport-fishing media (Carini & Weber, 2017; Gaynor et al., 2016). This flipped the control and power to the participants themselves who constructed their own narratives.

Seeking "moments of resistance, subversion and contestation of gender inequality" is an important step in uncovering and overcoming deeply-rooted beliefs about women in a masculine sporting context (Hargreaves, 1994, p. 47-48), but the social and cultural isolation of women and other non-male perpetuates a void in atypical stories from "non-traditional" recreational fishing participants. This study suggests that leisure scholars and research participants would benefit from incorporating community-engaged, participatory research tools into future projects. The collaborative nature of photovoice facilitated relationship-building and discussions between women, many of whom previously felt like they were alone in a leisure consisting almost entirely of men. Their enthusiasm in sharing the positive reasons they continue to fish, despite feelings of isolation and social sanctions, reflects the need for creating opportunities for marginalized leisure participants to connect with one another.

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4 *Becoming an Outdoors Woman* and Gendered North American Natural Resource Management

4.1 Abstract

Feminist organizational studies have identified numerous challenges street-level bureaucrats, or public servants, navigate as they design, implement, and maintain public programs that serve women. Gendered organizational goals and policies can profoundly influence bureaucrat behavior and their programs are received, supported and/or constrained, and evaluated. This study applies a feminist critique of bureaucracies to identify: 1) how a women's outreach program implemented by natural organizations is influenced by gendered professional and organizational norms, and 2) how the organizational staff who lead this program navigate related challenges. For nearly 30 years, Becoming an Outdoors Woman (BOW) programs have provided hands-on outdoor recreation opportunities for women. Using the BOW program as a case study, I conducted 34 semi-structured interviews with 34 BOW coordinators and used directed content analysis to identify multiple, interrelated challenges these organizational staff navigate while operating BOW programs within a gendered natural resource organizational context. This includes pervasive assumptions about how to best engage women as natural resource stakeholders and pressure to fit the BOW program within the predominant model of stakeholder engagement. Overall, this study demonstrates that the gendered foundations of the North American model of wildlife conservation continue to impact organizational-level decisions about how to conduct and evaluate a stakeholder engagement program designed for women.

4.2 Introduction

Organizations are not gender-neutral, and the social rules that govern behavior based on gender stereotypes can have a profound influence on individual and group behavior or "groupthink" (Acker, 1990; Mastracci and Bowman, 2015). The organizations that make policies and manage natural resources can also be gendered, which influences the services and programs they offer and how they interact and engage with stakeholders (Acker, 1990; Acker, 2006). Feminist organizational theorists (Ferguson, 1984) and public administration scholars (Choi, Hong, and Lee, 2018; Meier, Mastracci, and Wilson, 2006) have studied how internal, gendered processes influence organizations' functioning. However, studies that examine how gendered organizational policies and cultures impact North American natural resource management are largely absent (exceptions include Coutinho-Sledge, 2015; Lidestav and Sjölander, 2007).

The North American model of wildlife conservation and management was established within a patriarchal and masculinized professional context (Carroll, Freemuth, and Alm, 1996; Kohl, Hoagland, Gramza, and Homyack, 2017). As a result, natural resource (NR) agencies and other organizations historically valued self-interest,

self-sufficiency, and physical toughness, and even at present continue to employ a majority white, male staff (Taylor, 2015; Taylor, 2016). Furthermore, the traditional conservation funding model that maintains funding for state-level NR agencies to conduct wildlife and habitat management emphasizes maintaining and engaging a specific sect of stakeholders, namely hunters and anglers, who are majority white males (Eichler and Baumeister, 2018; Taylor, 2015). The New Public Management (NPM) movement likely bolstered these dominant power relations by reinforcing and promoting masculinized norms, including efficiency and effectiveness (Thomas and Davies, 2002). NPM also repositioned analytical thinking, aggressiveness, and competitive individualism as key components of workplace competence (Williamson and Colley, 2018). This results in normalizing dominant behaviors as masculine, and routinely representing and favoring men's interests above women's (Thomas and Davies, 2002; Williamson and Colley, 2018; Witz and Savage, 1991). The legacy of this includes both passive and active workplace discrimination against women and the marginalization of policies aimed to improve women's lives (Witz and Savage, 1991).

The North American model of wildlife conservation was founded on the principle that resources are held in the public trust (Eichler and Baumeister, 2018), but we know very little about how gender norms or gender inequities at an organizational level impact different publics, such as women, those with non-binary gender identities, and other non-white male resource users and stakeholders. NR organizations use outreach programs to target and recruit new participants, and women in particular, to hunting and fishing (Minnesota, 2017; Price Tack et al., 2018). These programs seek to increase hunting and fishing participation among new demographic groups as a response to declining overall participation among "traditional" stakeholders (Byrne and Dunfee, CAHSS, 2019b; Congressional Sportsmen's Foundation, 2019; NWTF, 2019a; Price Tack et al., 2018; Recreational Boating and Fishing Foundation, 2010; Responsive Management, 2017; USFWS, 2018), but how these programs are impacted by gendered organizational norms is understudied.

Studying organizations as gendered includes identifying how distinctions of what is masculine and feminine guide groupthink and related decisions and behaviors (Acker, 1990). These and other gendered organizational processes interact to influence how ideas of gender are constructed and considered in NR agencies, how policy goals are defined, and how related program objectives and outcomes are evaluated. This highlights the need to study not only natural resource stakeholders, but also the institutions that manage them in order to address gender-driven dynamics and subsequent policy decisions and programs. Understanding how organizational norms and related policies affect existing programs requires studying those who implement these programs. Examining organizational behavior from an employee's bottom-up perspective helps us better understand complex organizational behavior and resulting policy outcomes at the level of implementation (Brodkin, 2012; Hupe and Hill, 2015; Lipsky, 2010).

This paper applies these fundamental ideas about gendered organizations to a natural resource context. Broadly, it seeks to identify and demonstrate how women's programs,

and those who implement them, are impacted by internal organizational and professional norms. Using the Becoming an Outdoors Woman (BOW) program as a case study, I ask the following related research questions:

1. How do organizational and professional norms impact the Becoming an Outdoors Woman program?

2. What related challenges do BOW coordinators face, and how do they overcome these challenges?

4.3 Literature Review

4.3.1 Feminist Theory and the Gendered Organization

Feminist theorists began proposing systematic frameworks for analyzing the relationship between socially constructed understandings of gender and organizational processes in the late 1970s and 1980s (Ferguson, 1984; Witz and Savage, 1991). This was in response to a void of gender relations in prior framings of bureaucracies. Rejecting gender-neutral views of bureaucracies on "both empirical and theoretical grounds," feminist work of this era emphasized hierarchical social divisions within organizations as a function of broader social structures and systems including patriarchy and capitalism (Halford, 1991, p. 156; Witz and Savage, 1991). In this view, patriarchal organizations and their internal structures perpetuate and disseminate constructions of gender, keep men in dominant positions of power "to pursue strategies in their own interests and at the expense of women," and reproduce gender inequities (Acker, 1990; Witz and Savage, 1991, p. 43).

Acker (1990) described five specific gendering processes that operate within organizations. First, divisions of behaviors, labor, physical space, and power are constructed according to constructions of gender. For instance, objectivity and rationality are assumed to be inherently masculine (Stivers, 1991). Second, symbols and images are constructed to explain or reinforce those divisions (Acker, 1990). Third, interactions between individuals within organizations create relationships of dominance and submission. Fourth, individuals' identities are made up of gendered components and can impact what is expected of them in the workplace. Fifth, gender is responsible for creating social structures within organizations, including the assumptions and practices that make up organizations (Acker, 1990). Public administration scholars have applied Acker's framework to organizational case studies that have advanced our understanding of the relationships between gender, bureaucracies, and organizational processes, including how the gendered dynamics that make up organizational structures and cultures fuel resistance to positive policies for women (Carvalho et al., 2019; Kalev and Deutsch, 2018; Rubery, 2019; Nkomo and Rodriguez, 2018; Stainback, Kleiner, and Skaggs, 2016).

4.3.2 Bureaucrat Discretion and Behavior

Feminist critiques of public administration question a "business-as-usual" approach to understanding bureaucrat discretion within public administrations and suggest that public administration theory and studies of public servants and administrative discretion, could be advanced by a feminist perspective (Stivers, 1991). Halford (1991) also argued that understanding how inherently patriarchal organizations pursue women's programs and/or feminist policies requires examining organizations and their gendered structures and social dynamics from the inside. Street-level bureaucrats (SLB) are individuals working within organizations who are typically on the front lines of policy implementation due to their position, status, and duties (Lipsky, 2010). This responsibility often comes with a high level of autonomy and discretion which directly influences policy outcomes (Hupe and Hill, 2015; Lipsky, 2010; Wilson, 1989). Examining the factors that influence street-level bureaucrats' decisions helps us better understand overall organizational functioning and effectiveness (Sanderson, 2002; Wilson, 1989), including how policies are implemented and resulting policy outcomes (Brodkin, 2012).

SLB discretion in administrative, organizational settings requires individuals to make "judgments about the nature of the public interest in particular situations" and subsequent decisions that have real-world impact (Stivers, 1991, p. 509). Organizational cultures, ideology, prior experience, and professional norms all influence staff attitudes and how and what tasks are performed within organizations (Wilson, 1989). Embedded norms operating within organizational cultures influence street-level bureaucrats' discretionary behaviors and decision-making and in turn impacts overall organizational goals, functioning, and effectiveness (Sanderson, 2002; Wilson, 1989). Tasks that are viewed as outside the established organizational culture will not be given the same energy, attention, and resources as other tasks (Wilson, 1989). Organizations often have multiple cultures that compete for primacy, which leads to conflict and "turf wars" as bureaucrats working within a specific culture resist taking on new tasks that are viewed by staff as incompatible with their dominant sense of mission and organizational culture (Wilson, 1989).

In these ways, SLB discretion is influenced by the well-established and gendered norms that partially constitute organizational and professional cultures. For instance, organizational culture can constrain program facilitators and organizers' ability to utilize gender-related social science evidence in their policy and programmatic decisions (Rao et al. 2015). Relatedly, SLB attempting to advance women's interests from within state bureaucracies must negotiate gendered networks of power both as individuals and as part of a social collective (Witz and Savage, 1991). To be successful, SLB who work on women's programs must introduce new ways of behaving into their organizations, form their own networks, and build strategic alliances within their organizations (Witz and Savage, 1991). From a programmatic standpoint, this is important because different social dynamics, including gendered norms and the organizational cultures they are embedded within, are pervasive and inevitably impact how programs are implemented

and evaluated. Although there is a well-established literature on organizational culture and public administration behavior, including street-level bureaucrats, there are to my knowledge no applications in the context of how NR organization staff design, implement, and manage programs aimed at engaging women in outdoor recreation.

4.3.3 Gendered North American Natural Resource Organizations

North American natural resource organizations fit Acker's mold of a gendered institution because they were typically established by, and continue to employ, mainly white men, and they embody a human-nature dominance standpoint that also favors socially constructed definitions of masculinity (Eichler and Baumeister, 2018; Taylor, 2016). Some studies have identified clear evidence of patriarchal social hierarchies and hegemonic masculinities within the NR organizations that manage public trust fisheries and wildlife (Coutinho-Sledge, 2015; Lidestav and Sjölander, 2007). However, these studies are rare and do not address how gendering processes in a North American natural resource organization context impact women's programs.

Kennedy (1985) acknowledged the hierarchical structures and "class distinctions" that exist between biologists, technicians, and wildlife conservation officers, but this study is limited in that it omits any specific mention of gendering. Ironically, Kennedy noted that "considerable empathy is required by traditional male wildlife biologists to relate to women colleagues who do not drink, play poker, enjoy the fine art of daily jousting with humor, or look forward to fall hunting expeditions" (p. 574). This statement, and its publication in Wildlife Society Bulletin, could arguably be considered a reinforcement and perpetuation of men and women's roles and aptitudes within NR organizations and other professional settings. Similarly, a passage from a study of administrative behavior within the US Forest Service, demonstrates how the agency masculinized foresters' work as a recruitment tactic: "Young men are often attracted to the profession because of the prospect of outdoor work. They are fond of camping in the open and of hunting and fishing. One who is considering such a career should remember that the forester in his fieldwork sometimes must endure hardships that sportsmen do not encounter" (Kaufman, 1967, p. 163).

These statements demonstrate how a specific type of masculinity can be normalized and embedded in an organization's culture, identity, and public image. Connell and Messerschmidt (2005) point out that any "dominant" masculinity is an active social practice that can become embedded in social environments, including formal organizations. Any dominant masculinity within an organization is socially salient, meaning it is the most normative and accepted masculinity that members of the organization position themselves relative to (Connell and Messerschmidt, 2005). Although expressions of masculinity are not limited to men, hegemonic masculinity ideologically legitimizes men's subordination of women by creating a dominant narrative about what gender is most appropriate, and how that gender should be perceived and perpetuated.

Women's participation as conservation management leaders acting from within natural resource organizations is also understudied (Jones and Solomon, 2019). Most studies that examine issues of professional diversity within North American NR organizations focus on pipelines of education and recruitment (Adams and Moreno, 1998), with less attention paid to the internal organization dynamics that hinder women's roles as staff members and leaders within NR organizations. Adams and Moreno (1998) compared how NR professionals belonging to minority and majority demographic groups were represented in their profession including how they were recruited into their jobs and the factors that influenced their decision to stay in the NR field. However, this study omitted any mention of gender with the exception of noting that the majority of their survey respondents in both their majority-group and minority-group were male (80% and 84%, respectively). Despite diversity hiring and recruitment strategies and affirmative action policies, women and minorities continue to make up a smaller proportion of fish and wildlife agency staff at both the state and federal level (Angus, 1995; Arismendi and Penaluna, 2016; Ceci and Williams, 2011; Kern, Kenefic, and Stout, 2015; Reuben, Sapienza, Zingales, 2014). Both men and women believe women are not adequately represented in their organizations and that women in NR professions lack adequate female role models. State agencies have historically been less aggressive in recruiting and hiring women when compared to federal agencies (Angus, 1995). This is attributed to systematic biases and cultural barriers (Arismendi and Penaluna, 2016; Jones and Solomon, 2019).

Efforts to collect information about women in the fish and wildlife workforce "have remained sporadic, scattered, and disconnected" (Angus, 1995, p. 579). Women in fish and wildlife agencies perceive their workplace environments different than men in terms of perceptions of unmet needs, specifically opportunities for workplace advancement, professional networking, and opportunities to take on leadership or higher level administrative roles based on gender (Angus, 1995). However, even when they advocate for diversity women can oppose hiring quotas based on their own first-hand experiences of being assumed to have obtained their position based on their gender, not their ability (Munson-McGee and Thompson, 1995). In a survey of fish and wildlife management professionals, Angus (1995) found that 39 percent of men responded that their female coworkers' needs are met, whereas the women they surveyed reported numerous unmet needs including their desire/need for career development opportunities and opportunities to form strong female networks. Jones and Solomon (2019) found that all of the 56 women conservation leaders they interviewed reported experiencing or witnessing gender-related workplace challenges within their organizations. Given the myriad of gender-related professional challenges women working within NR organizations face, this paper aims to better understand how organizations and their associated professional norms impact bureaucrat's ability to manage outreach programs for women.

4.4 Study Design and Methods

4.4.1 Case Study Background

Case study research is a mode of inquiry that employs specific cases as the method of inquiry and a case or cases as the unit of inquiry (Yin, 2018). Here, I am using the Becoming an Outdoors Woman program as the unit of inquiry to investigate how gendered natural resource management organizations manage a women's outreach program and how program managers navigate related challenges. This is an interpretive case study that seeks to confirm the presence of gender norms within natural resource organizations and identify how these norms impact a women's outreach program. Although I am considering the Becoming an Outdoors Woman (BOW) program as a single case, this case has multiple "embedded units of analysis" resulting from interviewing individuals who coordinate unique BOW programs. An embedded unit of analysis design, or "Type 2" case study design as described by Yin (2018, p. 47-54), does not consider these separate interviews and programs to stand-alone as unique cases; instead, they are considered part of the original single-case (e.g., the BOW program as a whole).

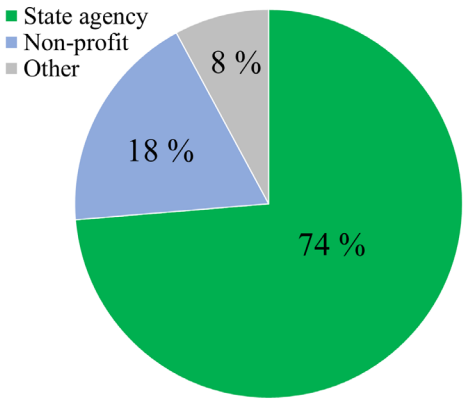
The University of Wisconsin-Stevens Point established the first Becoming an Outdoors Woman (BOW) program[6] in 1991 to provide hands-on opportunities for adult women to "learn new outdoor skills in a safe, supportive environment" (UW-Stevens Point, 2019). The idea for creating a women's-only program came out of discussions held at a one-day workshop titled "Breaking Down the Barriers to Participation of Women in Angling and Hunting" held at the University of Wisconsin-Stevens Point in 1990 (Thomas and Peterson, 1990). This workshop was attended by 65 individuals that included University of Wisconsin-Stevens Point faculty, Wisconsin Department of Natural Resources staff, staff from Iowa, Georgia, and Virginia natural resource organizations, and multiple members of hunting and fishing associations. After the first program in Wisconsin received a high level of demand from participants, BOW staff provided NR organizations in other states with a national BOW curriculum. The acting Wisconsin BOW coordinator also serves as the national BOW coordinator by providing training opportunities for new BOW coordinators and organizing a bi-annual BOW coordinators conference. To date, BOW programs are active in approximately 33 states and five Canadian provinces (UW-Stevens Point, 2019). Each BOW program is administered by a state or provincial-level organization with state NR agencies being the most common host organization (Figure 4).

BOW programs offer multi-day outdoor recreation workshops and trips for women. A typical weekend BOW program consists of four half-day activities ranging from firearm safety, archery, and fishing to kayaking, cross-country skiing, and outdoor cooking. Separate "Beyond BOW" programs focus on a single, more specific outdoor

[6] https://www.uwsp.edu/cnr-ap/bow/Pages/default.aspx

skills, and typically takes place over the course of a single day or half-day. Beyond BOW programs offer shorter-term (e.g., half-day) experiences that focus on a specific activity or skills area.

Figure 4. Becoming an Outdoors Woman host organizations, by type. Percentages shown are out of 38 total programs.



4.4.2 Data Collection and Analysis

Semi-structured phone interviews were conducted with Becoming an Outdoors Woman program coordinators in February, March, and April 2019. A comprehensive list of BOW coordinators, including contact information, is publicly available through the national Becoming an Outdoors Woman website (UW-Stevens Point, 2019). BOW coordinators were initially contacted via email wherever possible, or contacted via phone if their email information was invalid. Up to two follow-up emails were sent to non-respondents within 2 or 4 weeks of the initial email. Thirty-four of the 52 initial contacts agreed to participate in a phone interview (response rate = 65%). Most interviews were conducted by phone, with the exception of two interviewees who requested to answer a list of interview questions via email. Interviews ranged from 22 minutes to 78 minutes and averaged 38 minutes. All phone interviews were recorded with interviewee permission and transcribed to maintain an accurate record of the conversation. This study was approved by the Michigan Technological Institutional Review Board [project id 994594-1]).

Interviewees' current or past BOW host organization affiliations reflected the distribution of host organization types shown in Figure 4, with a majority (70%) of interviewees coordinating a BOW program within a state agency. State agencies included departments of natural resources, fish and wildlife/game, conservation, and parks. A smaller proportion of interviewees coordinate a BOW program from within a non-profit organization (14%). All other interviewees work either within a university, as independent contractors hired by an agency, or on a volunteer basis. The majority of interviewees (94%) were women.

At the start of interviews, interviewees were asked about their professional background, their previous and current experience working with a BOW program. Next, I asked a series of questions regarding their program goals and how they evaluate their program outcomes. As a woman and the primary/sole interviewer who has not participated in any BOW programs myself, I positioned myself as a newcomer to understanding the purpose and goals of BOW. These initial questions helped establish a rapport between interviewer and interviewee, as well as provided relevant information and rich context regarding the interviewee's involvement with their respective BOW program. The final series of questions asked interviewees to share any challenges related to coordinating and implementing their respective BOW program and how they navigated those challenges. These interviews were not framed in such a way that the explicit goal of identifying gendered organizational norms was explained because I wanted to avoid creating any expectations of what I might be looking for and avoid interviewees feeling as though they were talking about something controversial.

Interview transcripts were analyzed using directed qualitative content analysis as described by Hsieh and Shannon (2005) and Kuckartz (2014). Directed content analysis is appropriate when established theory and prior research exists about a phenomenon, but the phenomenon would still benefit from further study (Hsieh and Shannon, 2005). Because this case study is informed by preexisting ideas from gender and organizational studies, I was able to pre-form a framework for what evidence I might find prior to conducting the interviews. Directed qualitative text analysis followed the following steps: first, I conducted a literature review to identify key concepts related to gender and organizations and street-level bureaucracy. I then organized these concepts into a comprehensive list of "first cycle" categories and "second-cycle" sub-categories that constituted an initial coding scheme or codebook (see Miles, Huberman, and Saldaña, 2014 p. 82-83 for example). For example, under the first-cycle category "challenges/constraints" I created multiple second-cycle sub-categories wherever necessary such as financial, technological, and so forth. Each category and sub-category was given a unique, shorthanded code.

After creating this initial codebook, I used line-by-line coding in NVivo software to assign codes to all content within the interview transcripts and using predetermined codes wherever possible (NVivo, 2018). Any text that did not fit in the initial coding scheme was given a new code and assessed later to see if it fit within one of the predetermined categories or constituted an overlooked aspect of the existing theory or literature review. This iterative process included constant analytic memoing to reflect on individual interviews, compare and contrast with other interviewees' responses, assess patterns across interviews, and draw connections to extant studies of NR professions and organizations (Maxwell, 2013).

4.5 Findings

4.5.1 Organizational and Professional Norms in BOW Host Organizations

The directed content analysis identified seventeen unique, but often interrelated challenges BOW coordinators face while operating BOW programs, and many if not all of these can be related to organizational and professional norms. The most frequently cited challenges (cited by 76% of interviewees) to operating a BOW program were staffing/time limitations, finding instructors with an appropriate level of qualifications and skills, and finding appropriate spaces to hold BOW programs that met all the program's requirements (Figure 5).

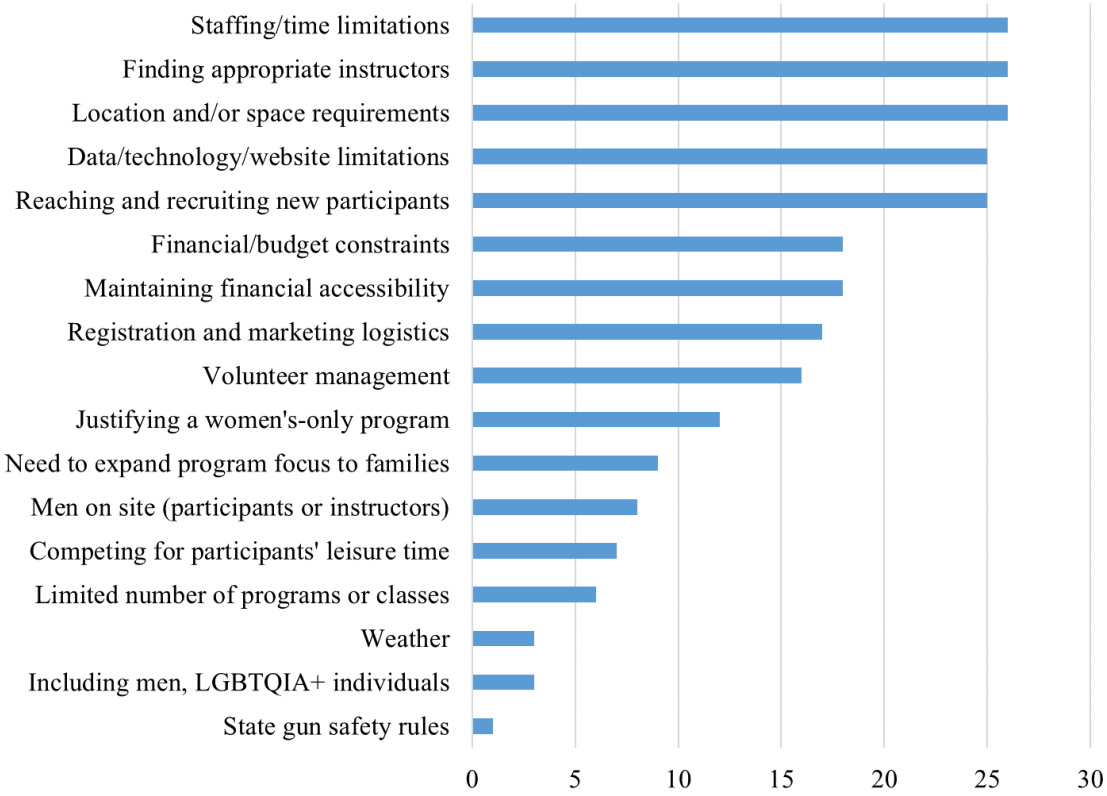


Figure 5. Challenges and constraints to operating a Becoming an Outdoors Woman. Values shown represent number of interviewees (out of n=34) who mentioned each challenges or constraint.

In the sections that follow, I summarize the results that most closely aligned with the literature review's summary of Acker's (1990) description of the five key gendering processes that operate within organizations, other previously identified evidence of gender norms operating within bureaucracies, and evidence for how street-level bureaucrats use their discretion to navigate organizational challenges and constraints. Specifically, I will focus on three challenges that stood out as gendered in the context of a

natural resource organization and relating to the North American model of wildlife conservation.

4.5.1.1 Staffing Limitations and Divisions of Labor

Acker (1990) cited divisions of labor and power as one of the gendered processes at work within organizations. Relatedly, a lack of internal support in the form of dedicated staff time was one of the three most cited challenge to running BOW programs. As illustrated by the following excerpt, nearly all BOW coordinators interviewed hold other responsibilities in addition to running their BOW programs, and felt that the BOW program could be a full-time position in its own right:

> My duties are very split. It's not an even 50:50. […] I have to coordinate for both of them [BOW and another program]. […] I'm all for wanting to do a bunch of events across the state, but with it being just me that's a challenge too. – Interviewee 1[7]

In some instances, interviewees reported having support from others within their organization in the form of dedicated, paid staff-time, while other interviewees could not offer their colleagues comp time if they assisted with BOW programs. In the latter cases, this meant that any support provided by other staff in terms of training volunteers, teaching BOW classes, or providing logistical support was strictly provided on a volunteer basis. Another interviewee expressed their frustration with the impact of these staffing limitations on expanding what they viewed to be an in-demand program:

> That's been my biggest frustration. The program [BOW] could be huge. Of the six programs I run, that's my favorite. [If] I could do that program full time I could do so much. I could do so many Beyond BOW programs, and the 3-day programs, and [even more]. But when you're limited, […] you've only got this much time and you've only got this much budget, well, you're not going to do that much." – Interviewee 14

4.5.1.2 Justifying and Operating a Women's Only Program

The challenge of operating an in-demand program with limited dedicated staff time was related to the challenge of having to justify why their organizations need a program that serves women as its main target audience. Evidence for gendered professional and organizational norms acting on BOW in this way was identified by approximately a third of interviewees (35%). One of the key feminist critiques of bureaucracies is that they maintain the power systems of patriarchy and therefore constrain or limit the impact of programs designed to improve women's lives (Acker, 1990; Witz and Savage, 1991). Analysis of interviews revealed that BOW host organizations typically misunderstood the reasoning for providing an outreach program

[7] Identifying information redacted to protect interviewees' identities.

for women only. As one interviewee describes, when she began her role as BOW coordinator her supervisors viewed BOW as an "old gals club" that only served a social purpose. This lack of understanding women's specific needs in terms of preferred, or most effective, learning environments demonstrates a male-dominated perspective within NR organizations. The assumption is that "normal" programs are appropriate for all, and "normal" means co-ed or family-focused programs. One interviewee even felt that, within their agency, it was "controversial to have a program dedicated to women, which is why there isn't broad support to fund a [full-time BOW] position."

Interviewees related their deep understanding and experience-based knowledge of why women's only programs are necessary and justified to achieve their programmatic goal of creating a valuable and comfortable learning environments for women. This stood in contrast to gender-related assumptions of their supervisors and/or coworkers who did not understand this on a fundamental level. Interviewees' coworkers and supervisors often assume that their organizations outreach programs would be more successful in creating new outdoor recreationists if they were family-oriented and/or co-ed. However, the BOW coordinators I interviewed repeatedly cited the impact of gender norms on these sorts of programs, including how co-ed or family-based programs would only create sub-optimal learning conditions for women who would be subject to shifting into traditional gender roles like supervising their children and/or deferring to their spouse(s). As Interviewee 25 described, they have seen firsthand how BOW provides women with the means to learn new outdoor skills away from their families and therefore provides a space for sharing new experiences with other women:

> "So I think, from what I've heard from women, because I've asked that question because it's been so heavily kind of gender neutral's kind of on the scene there. And of course they say it's worthwhile. It's what they want to learn in a supportive environment. They can't learn with their husbands present cause they kind of dominate the conversations and so they think it's important, my participants." – Interviewee 25

Interviewee 30 shared this perspective, citing gender normative behaviors like deferring to husbands and having a diminished experience as reasons to avoid "gender neutral" programming:

> "And BOW is just special to me because women come together and the camaraderie they share. They're encouraged by one another, and I think they [BOW participants] do better learning away from their significant others and their dad's, and I think they learn better from strangers and they learn better together when they share camaraderie with likeminded individuals." – Interviewee 30

Hierarchical staff interactions within organizations create and maintain relationships of dominance and submission (Acker, 1990). Relatedly, unless their supervisor had participated or at least observed the programs themselves many interviewees reported that their supervisors didn't seem to understand the point of

offering a women's only program. This also demonstrates the tension between the traditional NR management goal of creating new hunters and anglers and a misunderstanding of how gender norms can negatively impact women's outdoor recreation experiences. Supervisors and professional peers who questioned the social aspects of BOW as unimportant are likely driven by their organization's historical emphasis on wildlife conservation through hunter and angler recruitment, and the more utilitarian perspective and ideal of hunting and fishing being solitary pastimes that are more easily socially accessible to men.

Interviews revealed multiple ways the North American model of wildlife conservation, and its emphasis on creating and maintaining hunters and anglers, influences how BOW programs are evaluated. This issue was most often situated in the context of an organizational emphasis on recruiting, retaining, and reactivating (also known as "R3") new hunters and anglers. Interviewees working within agencies and non-profit organizations reported their need to follow national and internal R3 goals. However, interviewees also provided evidence that what they viewed to be the overarching goals and long-term benefits of BOW for participants did not always align with what their organizations' desired outcomes for creating new hunters and anglers in the near term. This relates to the legacy of the North American model of wildlife conservation and its reliance on creating and maintaining a steady base of active hunters and anglers. It also overlooks the social reality of women's gendered experiences.

Despite the interviewees' emphasis on the need to reach and recruit new BOW participants, they more frequently cited benefits unrelated to becoming avid hunters and anglers that participants gained through BOW programs. This relates to how BOW is evaluated and viewed as relevant by their organizations. To most if not all of the interviewees, BOW isn't just about recruiting new hunters and anglers and selling licenses. They frequently cited programmatic goals that were much more specifically explained as benefits to their participants, not their agency/organization. These perceived benefits to participants included developing a higher level of confidence, independence, and empowerment that would allow them to be more successful in many aspects of their lives, not just an outdoor recreation context. As mentioned earlier, accessing learning opportunities apart from the distractions of a spouse and/or children was also mentioned frequently. Building social networks by participating in these activities with other women, was frequently cited as a benefit of participating in BOW programs. However, these benefits were not always viewed by non-BOW organizational staff as explicitly tied to R3 goals. The result is an internal organization disconnect between a strong sense among interviewees that BOW empowers women in the outdoors and their organizations' emphasis on selling hunting and fishing licenses.

Interviewee 4 described how BOW's efficacy - in terms of creating new hunters and anglers - is questioned:

> "So we are part of a national study [...]. But we did pre, we did, we did the scene pre, post and follow up survey to all our hundred participants. [...] Just trying to

> see who's in our classes and, and where are they going ultimately. When we took over, we did a quick licensed survey to see who was actually buying licenses, you know, whether it's hunting, fishing, whatever. And it was so low that we were told that if we couldn't change that we were going to cut the program." - Interviewee 4

This illustrates how gendered notions and professional norms create assumptions and practices that dominant organizations' agendas and values (Acker, 1990). The vast majority of interviewees cited a lack of ability to track how BOW programs impact participants' future behavior as a significant challenge to providing the necessary internal metrics deemed most relevant by R3 evaluators.

Two final gender-relevant challenges included, 1) keeping BOW programs open and available for men or non-gender binary individuals, and 2) the challenge of finding appropriate instructors, specifically navigating the social difficulties of including men as BOW program instructors when women could not fill all instructor positions. Both of these issues were described by interviewees as an issue both in terms of accommodating non-women participants in terms of providing on-site housing for 3-day events, as well as ensuring the women who attend BOW would feel "comfortable" and "safe" attending a BOW program where they are living and learning in close quarters with other BOW participants. As a public-serving program, the state agencies that host BOW are required to admit any participant regardless of gender. While situations where this issue arose were mentioned by only 3 interviewees, these interviewees cited the logistics and social challenges of having men or non-binary individuals participate in BOW as being something that they foresee happening more in the future.

4.5.2 How BOW Coordinators Navigate Challenges

Interviewees cited numerous creative strategies they employ to navigate and overcome challenges to coordinating their BOW programs. Funding and budgetary constraints related to internal competition for public funds and/or organizational budget cuts were frequently mentioned as challenges that required atypical strategies to overcome. This included setting up alternative funding systems to maintain BOW programs' financial stability. A second challenge that BOW coordinators navigated is a lack of internal social support for, or knowledge of, BOW programs and their positive impact on participants. Interviewees cited multiple ways they worked to address this within their own organizations, including creating in-house scholarships for their colleagues to attend BOW.

4.5.2.1 Establishing Independent Funding Systems

Financial and budgetary constraints were cited by 53 percent of interviewees as one of their biggest challenges to both maintaining their BOW program and keeping participant costs low in order to maintain financial accessibility and scholarship programs for new attendees. Budget constraints related to internal competition for program

operational funds and/or diminished licenses sales and subsequently general funds were both frequently cited as a major funding-related barrier to maintaining their programs. However, interviewees frequently noted that they (or their predecessor) took strategic steps to secure their BOW program's financial future, and thus avoid having to compete for internal financial support for their BOW program. The most commonly reported strategy was establishing a separate, non-profit entity and volunteer board that operates outside the purview of their organization. This allows them to manage their program budget and associated spending and fundraising decisions outside the agency's reach, thus ensuring the longevity of their programs regardless of internal budgetary cuts. One interviewee summarized this strategy:

> "Through the wisdom of the people who came before me, they set up a 501c3 [...]. So while I am an [agency] employee, I am the only thing for BOW that [the agency] actually pays for. So they pay my salary and then they don't put any funding in for the program itself. So it's pretty self-sustaining. [...] And the purpose of that was because when you're running it through a state regulatory agency, if the money was coming in and say I miraculously made a profit one year on the workshop, that couple of thousand dollars […] would sort of get absorbed into our general fund, and who knows who could spend [the funds] at that point." – Interviewee 17

Despite frequently citing budget cuts as a challenge, most interviewee's shared this interviewee's sentiment that the BOW program, through participant registration fees essentially "pays for itself". This interviewee went on to explain how this system maintained the program financially in the context of agency emphasis on creating new hunters and anglers.

> "And the other thing is if, if when it's going through like management agencies, what we've seen in other states, like Pennsylvania did this, they ended the BOW program because the money went through Pennsylvania Fish and Game and they decided that, well, we're not seeing enough return for our investment here. There's not enough women coming out of BOW buying sporting licenses to make it worth our time and money. So they cut the program. So this way, there's no, since they're not really putting any investment into the program, [...] they can't really cut it. It's kind of like a safeguard for us." – Interviewee 17

In addition to ensuring the longevity of their BOW programs, interviewees noted that maintaining their own funding stream allowed them to meet an additional goal of keeping BOW financially accessible to potential participants by maintaining low registration costs. Although setting up an independent account and organization helps BOW programs self-sustaining, these funds cannot support staff travel to professional development opportunities. This means that, for many of the interviewees, internal funding cuts still impact their ability to travel for BOW-related training and professional development opportunities, including conferences hosted by the national BOW program. Losing their ability to access networking with, learning from, and supporting and gaining support from other BOW coordinators arguably further isolates BOW coordinators and prevents them from forming their own professional support networks (Witz and Savage,

1991). Several interviewees mentioned overcoming this sense of isolation from other BOW coordinators by establishing their own, smaller regional networks with other BOW coordinators who were geographically close to them. While this has benefits, this also required these individuals to spend extra time to self-organize, rather than attend a BOW coordinator conference organized and hosted by the national BOW program.

4.5.2.2 Using Internal Outreach to Address Lack of Organizational Support for BOW

A second internal challenge many interviewees identified was a general lack of internal social support for BOW programs. This was often attributed to poor program visibility or a lack of knowledge of BOW within their own organizations. In some instances interviewees found that once higher ups within their organizations better understood and supported BOW, they were more apt to adjust internal rules to allow staff to use paid time to assist with BOW. One interviewee reported receiving more support from their supervisor after his wife attended a BOW program. Supervisors making site visits to see BOW programs in action and observe participants directly also helped boost support for the program within other organizations. Another solution utilized by an interviewee was to offer staff scholarships to attend BOW:

> "To be able to get our staff to understand about the program, years ago we [set up a scholarship], we would give two women the opportunity from within our entire agency to apply to go to BOW. And they would receive this, so called scholarship, and they would be able to attend free of charge. That way, they would learn what we're doing within our agency and they can go back and tell other people as well." – Interviewee 27

This strategy served to create more internal knowledge of and support for BOW. The interviews reflected that this process of addressing a lack of internal awareness of the BOW program takes time. One interviewee reported seeing a gradual change over many years of operating BOW within her agency,

> "I guess the thing to know about the BOW program and [state name] is that it has been not only driven by volunteers as instructors, but it's really been driven by volunteerism within the agency. Because it's not like our department, I mean all of a sudden division directors and our commissioner, and those commissioners are appointed positions, and they change. And it's been, it's taken a while for the department to even own the program as its program. It was really kind of, oh BOW, that's just something that some staff within [the agency] do with the support from [partner organization], rather than saying, oh wait, no, wait, this is a program our department is responsible for and is proud of. And I think that's been pretty neat that, from the bottom up, this program's been built and it's been successful. And now, the department itself takes pride in the program overall and is really supportive of its expansion. [...] And so it's really been a change since I've even been here to see that happen." – Interviewee 26

This interview and others demonstrated that the success of BOW programs is very much determined by single or small team efforts within their organizations. As this interviewee notes, it took a lot of hard work from key individuals working from "the bottom up" within the organization, along with committed volunteerism, for the program to gain respect from division directors and the agency executive and from within the agency as a whole. Although multiple interviewees noted that their organizations currently embrace, support, and take pride in their BOW program, this required BOW coordinators to introduce a new way of thinking about stakeholder engagement and building support networks by inviting their colleagues to participate in (or observe) the program firsthand.

4.6 Discussion

This study applies feminist theories of bureaucracies, including Acker's (1990) framework of gendered organizations, to analyze how a women's program is impacted by organizational and professional norms within the natural resources sector. Using the Becoming an Outdoors Woman program as a case study, I demonstrate how misunderstandings of gender and related assumptions about how to engage with women as natural resource stakeholders impact BOW programs. By situating BOW programs within the larger context of hunter and angler recruitment policies, I also identify how the core goals of the North American model of wildlife conservation influence how BOW programs are perceived, valued, and evaluated by their host organizations. This study also identifies how BOW coordinators must use their creative discretion to make day-to-day decisions about how to implement, evaluate, and sustain a women's outreach program that is subject to gender natural resource organization norms.

One critique of the North American wildlife conservation model is that it forces natural resource agencies to rely on hunters and anglers and therefore maximize license sales revenue (Price Tack et al., 2018). Critics of the North American conservation funding model argue that this "user-pay" system has historically centered and valued the perspectives and needs of white men who are technically a minority among the general population (Eichler and Baumeister, 2018). This model's emphasis on gaining and fostering support for fish and wildlife management from hunters and anglers impacts current organizational goals and programs by continuing to emphasize hunters and anglers and engaging with women and other stakeholders in the same way white men have been engaged with in the past.

Analysis of interviews with BOW program coordinators revealed that the BOW program is influenced by this legacy. While BOW is generally supported when it is considered part of a broader agenda that emphasizes hunter and angler recruitment, the observed outcomes and benefits of BOW for participants observed by BOW coordinators are often disconnected from gendered professional and organizational assumptions about how to best engage with women as stakeholders. This illustrates the importance of studying organizational processes and programs from the street-level perspective of those who implement programs on a daily basis. It also identifies a shortcoming of BOW host

organizations, which is that they are prone to overlook their own gender biases and as a result challenge rather than support a women's program.

In order to truly be democratic, organizations must address how gendered organizational practices and assumptions segregate work and how they invent, reproduce, and disseminate cultural images of gender and influence organizational goals, policies, and practices (Acker, 1990; Halford, 1991). Avoiding preferential treatment of special interests is a core component of public trust thinking (Hare et al. 2017), and BOW programs provide an obvious means for NR organizations to engage with women that will not necessarily require them to become hunters and anglers. Interviews with BOW coordinators showed that, while BOW aims to increase opportunities for women in the outdoors with some emphasis on hunting and fishing, in general BOW programs provide scaffolded outdoor recreation experiences that the interviewees believe are still relevant for women. In BOW coordinators' view, the uniqueness of BOW as an all-women's experience is arguably still necessary to provide accessible outdoor recreation programs in a safe, comfortable, and supportive environment. Welch (2005) suggested that attending BOW programs helps women negotiate constraints to outdoor leisure pursuits and have higher levels of perceived self-efficacy than women who did not attend a BOW program. Interviewees also provided evidence for positive psychological and social benefits BOW participants gain from their participation in the program, including improved confidence, social networking, and desire to learn more.

While it is likely that the legacy and continued impact of BOW is increasing the social acceptability of women in the outdoors and women in NR careers (Angus, 1995), slow social changes such as these are difficult to measure and evaluate, and therefore less likely to be seen as indicators of a program's success and/or impact when success is measured in recruiting new hunters and anglers. In essence, the perceived psychological and social benefits of BOW to individual participants do not align with these organizations' broader goal of selling new fishing and hunting licenses. It is likely that this tension will persist as the push to incorporate R3 goals into all aspects of resource management programs positions BOW as part of a larger R3 portfolio. This can both increase program visibility and broader organizational awareness of BOW programs and subjects BOW to assessments and measures of programmatic "success" that may not accurately portray the broader positive impacts of the program on women and society at large.

Understanding these dynamics in the North American wildlife management context requires developing relevant, and detailed, context-dependent case studies at an organizational level. Recent work on alternative conservation funding schemes suggest that non-consumptive recreational stakeholders are willing to pay for recreation services provided by NR agencies and conservation organizations (Grafeld et al., 2016; Steven et al. 2017). This is positive news, given that declines in hunting and fishing participation based on societal-level shifts in how people value and wish to interact with the outdoors and fish and wildlife in particular may be inevitable (Gamborg and Jensen, 2016). BOW

may remain relevant as its programming includes not only hunting and fishing, but other outdoor activities that are more socially acceptable for the majority of Americans.

Meeting the needs of a more diverse and comprehensive range of stakeholders will likely require organizational change and transformation, but introducing change in bureaucratic organizations is not easy because they are set up to resist change through divisions of labor and administrative hierarchies (Halford, 1991). They are also impacted by strong cultures, professional norms, and formal and informal social structures that resist change (Halford, 1991; Wilson, 1989). A further complication is that organizations are not cultural monoliths and a single organization can have multiple sub-cultures with varying degrees of gendered dynamics (Halford, 1991; Ressner, 1987; Wilson, 1989). Variations between sub-cultures of different departments within the same organization can be based on professional differences in how some fields to emphasize equal opportunity policies and practices more than others (Halford, 1991). Evidence for this was apparent in the interviews, with multiple interviewees attesting to their BOW program being valued and supported within their immediate working groups or departments, which staff working with other divisions or administrative levels may not share the same sentiment. However, "gender orders construct multiple masculinities" (Connell and Messerschmidt, 2005, p. 835) and "older forms of masculinity might be displaced by new ones" (Connell and Messerschmidt, 2005, p. 833). In a NR organizational context, celebrating and/or idealizing presumptively "'feminine' values such as nurturance, connectedness, and intuition" would form the basis of a paradigm shift in organizational thinking (Stivers, 1991, p. 506). Women's difference and perspectives are not being leveraged to the extent that they can fully contribute to, and improve, natural resource management (Davidson and Black, 2001).

4.6.1 Future Studies

Identifying how gendered processes reinforce the status quo in organizations is a necessary first step in supporting social change and improving and democratizing NR management. Unfortunately, this is understudied and poorly understood in a North American NR organizational context. Few studies address the impact of NR professional cultures or subcultures on women and/or women's programs or apply gender and organizations frameworks to North American natural resource organizations. Recommendations for future work that can build on this study include incorporating additional applications of feminist theory into future research. In-depth case studies of organizations can provide both nuanced and context-rich information about specific organizational dynamics and broader lessons that can inform other cases. Feminist and gender theories can also be combined with public administration approaches including further examinations of street-level bureaucrats and questions about the efficacy of representative bureaucracies.

4.6.2 Conclusion

Modern bureaucracies are influenced by the subordination of women (Witz and Savage, 1991), and historical and contemporary studies of organizations and their policies demonstrate that state institutions have concrete gendered implications in our everyday lives (Halford, 1991). Munson-McGee and Thompson (1995) asked, "Should gender be an issue in the wildlife profession?" (p. 566). The question misses the point because gender is, and will continue to be, an issue in North American wildlife management. Assuming that "the men who set up and still predominate in social systems, and their demonstrated values whatever they may be in particular settings, represent the human norm" (p. 508) is unwise because it limits our ability to recognize how non-males are marginalized (Stivers, 1991, p. 508). Until gendered organizational structures, including professional norms, are identified and addressed, they will continue to constrain programs that target women and other "non-traditional" NR stakeholders.

4.7 Acknowledgements

I would like to thank the 34 current or past Becoming an Outdoors Woman program coordinators who agreed to be interviewed for this project. This work would not have been possible without their time and insights.

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5 Discussion

5.1 Key Contributions

The purpose of this dissertation was to study how gender impacts outdoor recreation participation and natural resource management in the North American context. Despite its gendered history, the North American system of wildlife conservation has not been studied from a feminist or critical gender standpoint. This research both addresses the need to better understand gender-based differences among Great Lakes fisheries stakeholders (Heck, Stedman, and Gaden, 2016) to inform more inclusive fisheries management and begins to address the lack of policy-focused research in a Great Lakes context (Johns and Teare, 2015).

Broad sociodemographic changes among outdoor recreationists have altered outdoor recreation patterns in the recent past, and these changes will continue to influence men and women's fishing experiences and how natural resource agencies consider and treat marginalized stakeholders. This is important for three key reasons. First, natural resource management agencies and related organizations need to consider women as complex and unique stakeholders because outdoor recreationists provide funding and political support for management programs. Second, one of the primary goals of the Joint Strategic Plan for Management of Great Lakes Fisheries is to "use science-based information in management decision-making" (GLFC, 2007). However, we know that social science or "human dimensions" data is lacking in recreational fisheries management in the Great Lakes context and North America more broadly.

5.1.1 Feminist Critique of Wildlife-Based Recreation

This dissertation contributes to gender and leisure studies by applying a feminist theory framework to show how interrelated gender norms, organizational culture, and demographic patterns influence women as recreational fishing stakeholders and organizations that conduct outreach programs for women. As a feminist body of work, this dissertation addresses one of the criticisms of gender and environment studies, which is that women are often treated as a single group with the same attitudes and actions (Arora-Jonsson, 2017). While gender and environment scholars have already begun to address this critique, human dimensions of wildlife studies have yet to treat gender as a factor that impacts individuals' fishing-related experiences. Indeed, most existing studies of the role of gender in recreational fishing use gender as a substitute for sex without exploring how gender-related social processes and norms influence recreation decisions. Furthermore, this dissertation studies women's experiences using a feminist participatory approach. Studying women from a feminist perspective without comparing their experiences to men's is necessary to understand the nuanced and varying leisure experiences of subgroups of women (Henderson 2013, p. 128).

5.1.2 Informing Stakeholder Engagement Strategies

This dissertation provides important information about women anglers that can be used to identify unique attitudes and behaviors that have previously been overlooked by fisheries managers. Investigating fishing participation rates and how these have changed over recent time is only one way to evaluate how successful, or unsuccessful states have been in recruiting women. The impact of gender norms on women's fishing participation persists, and women's lived experiences and personal expertise show how they must navigate and overcome these gender norms in unique ways that sometimes include embracing gender-based differences. For example, I have provided a pilot example of how qualitative participatory social science research methods can be used to better understand recreational fisheries stakeholders. This demonstrates to the Michigan Department of Natural Resources and similar agencies that more gender-aware fisheries policies for both men and women are necessary to engage with subgroups within different genders.

The findings from this dissertation can be used by fisheries managers to better understand how well they are reaching all stakeholders, regardless of their gender, which can in turn help them justify spending, prioritize management issues, and build better relationships with fisheries stakeholders (Schroeder et al. 2006; Thayer and Loftus, 2012). For example, recruitment, retention, and reactivation (R3) programs are a current priority for state natural resource management agencies, and these programs should be informed by qualitative studies of outdoor recreationists' values and norms. My findings can help agencies think about how they may need to adjust their recruitment strategies or provide different opportunities for unique stakeholder groups such as, but not limited to, women. Studying women as marginalized recreational fisheries stakeholders is also an important step, and perhaps a gateway, for fisheries management agencies struggling to understand other "non-traditional" fisheries stakeholders, including people of color, urban anglers, and non-binary recreationists.

5.1.3 Natural Resource Organizations are Gendered

This dissertation demonstrates the importance of understanding social processes within natural resource management by examining the very institutions that engage with women and other marginalized natural resource users and stakeholders. Organizational policies and norms are impacted by the legacies of how they were founded and their continued reliance on masculinized notions of how best to engage stakeholders in wildlife management and conservation funding. Even when a program like Becoming an Outdoors Woman (BOW) is popular among its participants, the individuals in charge of that program must go above and beyond to secure the program's future due to a lack of executive and broader organizational support. This lack of support is tied to a lack of understanding women's social plight in a highly gendered recreational landscape, but it also relates to assumptions of how to engage with women.

This work contributes to the policy and public administration literature by identifying the influence organizational culture and professional norms on women's outreach programs. Studies that explore the internal organizational dynamics within top-down decision-making institutions and how these impact fisheries policymaking are rare, but understanding these dynamics and how they impact knowledge producers and policy practitioners is necessary in order to understand what underlying preconceptions impact how institutions function (Arora-Jonsson, 2017). Studies focusing on the often overlooked influence of social structures, institutional dynamics, and historical context on institutions could help policymaking organizations incorporate a broader definition of evidence into their decisions in order to create more inclusive policies and improved management outcomes (Arora-Jonsson, 2017, Dobson, Riley, and Gaden, 2005; Longo and Clark, 2016).

5.2 Recommendations

5.2.1 Recommendation 1: Incorporate Gender into Natural Resource Management Decisions and Policies

Improving natural resources management, decision making, and stakeholder engagement requires natural resource scholars and practitioners to consider the influence of gendered processes, such as norms and expectations, throughout policy development, decision making, and implementation. They should also keep in mind that gender is not strictly a woman's issue, but a dynamic process that influences all people and institutions. The state agencies that manage fisheries and make or recommend policies have mission statements that include sustaining recreational opportunities and practicing good governance, but in reality this may not be happening if policies and management processes do not account for gender.

Policy interventions that ignore gender have disparate outcomes for men and women and can perpetuate gendered natural resource governance (Nightingale et al., 2017). Fisheries managers need evaluations of angler interest and demand, which includes understanding the various unique user subgroups that exist in recreational fisheries in order to best serve all constituencies (Connelly et al. 2013).

5.2.2 Recommendation 2: Critically Consider How the NA Model of Wildlife Conservation Impacts "Non-Traditional" Stakeholders

Based on my findings, state natural resource agencies should consider how the legacy of the North American conservation management funding scheme, and the recent R3 movement, are helping or hindering their ability to think creatively about stakeholder engagement. Getting women to become anglers and hunters may not be the best way to engage with all women, but a tension arises from a mismatch between how women choose to recreate and the North American conservation management funding scheme and its underlying gendered assumptions. BOW coordinators that I interviewed

questioned this themselves, as they saw many benefits to introducing women to any outdoor recreation experiences in a safe, supportive, women's-only environment. However, fishing license sales provide a very practical, and financial service to state natural resource agencies, and it warrants recognition that state natural resource agencies are in a financial bind.

This intersection of fishing participation's mutual benefits for participants and fisheries practitioners warrants continued investigation of the social dynamics embedded within recreational fishing's many social settings. One benefit of R3 policies is that they put more attention on the social aspects of outdoor recreation recruitment, retention, and reactivation by drawing from the outdoor recreation adoption model. One immediate recommendation is that these organizations pay closer attention to women's preferences and the preferences of sub-groups of women based on their age, generation, and other aspects of their identity and social situation and adjust their recruitment strategies according. One implication of this research for state natural resource agencies is that a policy change like offering a spousal license could improve agency funding, but recognizing the gendered nature of this policy decision is an important step in acknowledging that women's recreation decisions are still influenced by gendered processes. The availability of a spousal license option could also be an entryway for women to get involved in fishing who might otherwise not participate in the sport.

A commitment to public trust natural resource management necessitates deepening our understandings of unique groups and subgroups of stakeholders (Eichler and Baumeister, 2018). Focusing specifically on women, as opposed to other marginalized groups, is only a starting point for Great Lakes fisheries management. Tracking and understanding how agencies engage with marginalized fishing groups, including racial and ethnic minorities living in both urban and rural areas, could lead to more inclusive management practices. Furthermore, intentionally addressing gender inequity in fishing participation and internal management structures benefits not just women but other fisheries stakeholders as a whole. One example is the indirect effect improving gender equity in fishing can have on children. Participating in a leisure activity as a child is a significant determinant of continued participation (Henderson, 2000). Since children often fish with their parents, and women are still the most likely child-carers, addressing gender inequity in recreational fishing could be a way to introduce the sport to children and families.

5.2.3 Recommendation 3: Use Community-Engaged, Participatory Approaches to Understand Stakeholders

Integrating participatory research and community-engaged projects into recreational fisheries management is a must. In general, public participation in natural resource management can provide important information to managers, improve stakeholders' trust in agencies, and facilitate better communication between agency staff and resource users (Parkins and Mitchell, 2005; Smith et al., 2013). Traditional fisheries management models used by natural resource agencies have not recognized women as

legitimate clients to the same extent they regarded male participants (Anderson, Loomis, and Salz, 2004). As demonstrated in Chapter 3, this research facilitated settings where women anglers shared their own stories with each other, their local communities, and local and state-level policymakers. Photovoice is a novel approach for natural resources agencies to engage with and understand stakeholders that allows recreationists to share their own expertise and knowledge with each other, their communities, and decision-makers. Furthermore, photovoice is convenient and engaging for recreational anglers, cameras are widely available on cell phones, and anglers generally enjoy sharing their fishing stories. Creating a space for group discussion of the photographs among research participants, community members, and Michigan DNR staff promoted a new dialogue between the Michigan DNR and its constituents. This could help these groups understand each other and their experiences, and new information could be also be used to design more efficient and targeted outreach programs and help the MDNR practice a more complete version of ecosystem-based management that more fully incorporates human dimensions.

5.2.4 Recommendation 4: Bridge Research and Practice

A final recommendation is that more emphasis needs to be made on bridging research to practitioners and policymakers (Arora-Jonsson, 2017). Mainstreaming gender in environmental policy can become a technocratic exercise that essentially is reduced to rhetoric, but not concrete outcomes (Arora-Jonsson, 2017). Although this dissertation makes advances in gender research, there are still challenges to making feminist research compatible with the "non-feminist governmental machinery" (Arora-Jonsson, 2017, p. 300). Future research should emphasize how to bridge this research-policy gap, and feminist researchers should strive for conducting research that has a real-world impact.

5.3 Limitations and Future Research Directions

This dissertation is limited in that it cannot draw from other feminist studies of the North American resource management because these studies are largely non-existent. Relatedly, one future research project that can contribute to the body of work this dissertation begins is:

- A review of past social studies of recreational fishing in the North American context up to this point.

There is no comprehensive review of topics covered by recreational fishing papers (e.g., fish consumption, participation trends, angler values), and the field would benefit from a comprehensive "lay of the land". Recreational fishing is cited as being beneficial to participants in a number of ways, but most studies that examine recreational fishing participants focus on how anglers impact the fishery (e.g., target species, transport of invasive species) and not the social dynamics that shape individuals' fishing decisions and experiences. Recreational fishing studies also tend to group men and women together

in their analyses or omit women altogether. Given the positive attitudes towards the ability of fishing to improve our lives and connection to the natural world, it is essential to understand how socially constructed processes like gender impact the ability of women to access and enjoy the many benefits fishing can provide.

Although Chapter 3 provided rich context for women's experiences, these findings are not generalizable to all women who fish, or even all Michigan women who fish. The participatory photovoice findings, however, can inform larger scale surveys of women by demonstrating the need for asking women questions that are unique to their gendered experiences. This contrasts to previous studies of women who fish that assumed women should and can be best understood under a male-female dualistic research system. A related shortcoming is that all the photovoice study participants self-identified as some combination of White/Caucasian/ European. This demographic make-up fails to capture an accurate and representative sample of all women who fish. Additional follow-up studies that work to better understand women anglers should:

- Utilize additional mixed methods means to extend and supplement this work and understand non-white fisheries stakeholders, including sub-groups of women, non-binary individuals, and other poorly acknowledged and poorly understood stakeholder groups.

This dissertation is also limited by the lack of data availability as natural resource agencies that sell fishing licenses have only begun tracking fishing license sales in a usable (for research) format less than 20 years ago. As such, I recommend that future studies incorporate additional data from non-Great Lakes states in other regions of the United States in order to:

- Compare and contrast the influence of different hunting and fishing licensing policies on recreation behavior in different regions of the United States.

A related issue is that, until recently, non-consumptive outdoor recreationists such as birders and hikers received little attention from wildlife conservation programs and organizations. This is because these groups traditionally have not contributed to wildlife conservation funding as much as traditional financially supporting groups like anglers and hunters. However, there is an increasing recognition that broad societal shifts and wildlife value orientations are leaning towards mutualistic relationships with fish and wildlife that typically don't include broad support or an interest in fishing and hunting (Dietsch et al. 2016). However, a growing interest in recruiting women and other currently underrepresented groups to become active and engaged hunters and anglers make studies of these non-consumptive recreationists highly relevant. Future studies should:

- Critically examine the push for recruitment, retention, and reactivation (R3) programs within natural resource organizations in order to understand how R3

efforts may be influencing how non-consumptive outdoor recreationists feel about wildlife management and the dominant funding model.

And finally, although I have demonstrated how one women's program (Becoming an Outdoors Woman) is influenced by gendered professional and organizational norms, this is only one study of a single program. Coutinho-Sledge (2015) demonstrated the pervasiveness of masculine ideals in the forestry sector, and its impact of women in this profession, but additional studies are needed in order to identify how natural resource organizations can improve their internal processes and values in order to conduct programs for all stakeholders fairly. In short, street-level bureaucrats and the organizations they operate programs within are understudied in the North American context. Chapter 4 is limited by being a (to my knowledge) first-ever attempt to examine the impacts of gendered natural resource management on a women's outreach program. This limits my own study by making it more exploratory in nature. My final recommendation is that academics interested in this topic:

- Apply feminist bureaucracy theory and gendered public administration studies to better understand how North American natural resource organizations function.

5.4 Publication Plans

Each individual chapter was prepared with a target peer-reviewed journal in mind. In addition, I am planning to create additional research summaries that target public and non-scientific audiences. Chapter 2 is currently being revised for resubmission to *Society and Natural Resources*, Chapter 3 is currently in review at *Leisure Sciences*, and Chapter 4 is in preparation for submission to *Society and Natural Resources*.

In addition to these peer-reviewed journal articles, I plan to write the following additional publications:

- An article for WisContext.org summarizing demographic trends among Great Lakes anglers in Wisconsin and compares these trends to data from nearby states, including Michigan and Minnesota.
- A StoryMap webpage that serves as a public-facing exploratory tool for understanding Great Lakes region fishing participation trends and women's fishing experiences.
- *Journal of Extension* article that shares the challenges, benefits, and lessons learned from the application of photovoice with recreational anglers.
- An online article for WisContext.org about the 30-year history of Becoming an Outdoors Woman program.

5.5 Conclusion

As a whole, this dissertation demonstrates that wildlife-based recreation management and stakeholder engagement programs are constrained by the gendered assumptions of North American model of wildlife conservation and funding. This perspective is needed because gender-related factors shape user participation patterns, stakeholder engagement, and agency policy decisions. Social constructions of gender rooted in long-standing organizational cultures influence outdoor recreation participation by creating gendered structures for entering the sport of recreational fishing (e.g., a spousal fishing license) that can reinforce gendered expectations of how people should engage with natural resources. Without identifying how gender influences women's needs as outdoor recreationists and natural resource stakeholders, North American natural resource management cannot fulfill its public trust obligations.

This dissertation extends gender and leisure scholarship by considering how gender impacts recreational fishing, an outdoor activity that has been overlooked in both the human dimensions of wildlife and leisure studies literature. Recreational fishing is not just a means to support conservation and natural resource management at the state-level. It is a setting where women can overcome gender norms while connecting with themselves and others in unique ways and on their own terms. Understanding the norms, gender or otherwise, that influence anglers' values is useful for fisheries managers and policymakers who might want to promote resource stewardship (Bruskotter and Fulton, 2008), equal access to resources and modes of public input for all stakeholders, and more informed, creative, and inclusive policies (Anderson, Loomis, and Salz 2005). Understanding social dynamics is also an important part of ecosystem-based management, which is included as one of the main strategies of the Joint Strategic Plan for Management (JSP) of Great Lakes Fisheries, but the social science side of ecosystem-based fisheries management is currently lacking in the broader Great Lakes system (Heck, Stedman, and Gaden, 2015; Heck, Stedman, and Gaden, 2016).

Recreational fishing participation, unlike hunting participation, appears to be holding steady or even increasing across much of the United States and in Upper Great Lakes states. Given the continued popularity of fishing, and the importance of maintaining or increasing fishing license sales among state natural resource agencies, it is imperative that we gain a deeper understanding of all recreational fisheries participants and stakeholders. Although women now constitute up to one-third of total anglers in states like Minnesota and Wisconsin, we still know very little about this group's unique needs, values, and concerns. My research begins to address this gap by examining women and outreach programs that target women from multiple perspectives: broadly at a demographic trends level, from the bottom-up by emphasizing and valuing individual women's lived experiences and perspectives, and at the organizational level by examining how programs targeting women are impacted by organizational cultures.

This dissertation can help policymakers at state agencies understand how internal organizational structures and attitudes could be hindering or aiding their ability to

practice more inclusive management. Social science is most often used to identify problems, but it can also be used to identify options for intervention, define who is involved, and assess the performance or impact of a policy (Stoker, 2016), and this includes providing the necessary information on the social and cultural context of both policymaking institutions and their stakeholders, or those who are impacted by their policies.

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A Other Publications Related to Chapter 2 Photovoice Project

Article title	Type	Weblink (updated 12/2/19)
Women Who Fish Have Stories to Tell: Part 1	Online blog	http://msgfellowship.blogspot.com/2019/02/women-who-fish-have-stories-to-tell.html
Women Who Fish Have Stories To Tell: Part 2	Online blog	http://msgfellowship.blogspot.com/2019/08/women-who-fish-have-stories-to-tell.html
Women Who Fish Have Stories to Tell	Michigan Sea Grant Newsletter Article (September 2019 issue)	https://www.michiganseagrant.org/newsroom/upwellings-newsletter/

B IRB Package for Photovoice Project

Michigan Tech

Office of Compliance, Integrity, and Safety
Phone: 906-487-2902 E-mail: IRB@mtu.edu
1400 Townsend Drive
Lakeshore Center, 3rd Floor
Houghton, MI 49931

Reset Form

Exemption Request and/or Limited Review

Federal regulations (45 CFR 46) permit the exemption of some types of research from IRB review.
Exemption does not mean that you do not need to submit a study for review; our office requests information about your study and will determine the level of review required for approval.
If you have any questions, feel free to contact our office.

Eligible for Exemption: There are several classifications of research which may involve human subjects but their classification falls outside of the IRB's policies and jurisdiction.

Determination that research is exempt or requires limited Institutional Review Board (IRB) review is made through the Office of Compliance, Integrity, and Safety. Exemption from review is only available to certain categories of research as define by federal regulation. If you have questions about whether your project might qualify for exemption, please contact our office.

Project Title	Using Participatory Photovoice to Understand Michigan's Great Lakes Anglers		
Project Start Date	May 15, 2018	Project End Date	May 31, 2019
Principal Investigator	Dr. Angie Carter	Department	Social Sciences
E-mail	ancarter@mtu.edu	Phone	906-487-1431

I. Project Description

1. Purpose and goals of the research:
(text field will expand)

*****THIS SECTION HAS BEEN EDITED 5/15/2018******

The goal of this study is to use Photovoice, a participatory research method, to better understand gender-related drivers of recreational fishing participation among Michigan's women Great Lakes anglers and to also understand how women connect with the Great Lakes fisheries more broadly (not only through fishing). The purpose of this study is to identify the conditions that lead women to begin participating in recreational fishing, their reasons for participating, and their interests and concerns related to fisheries management and policy. Fisheries management agencies can use this study's information to understand the limitations and barriers to accessing and participating in recreational fishing women face.

2. Methods and procedures: Describe in detail what subjects will be asked to do, what information will be collected about them, and when or how often research procedures will be conducted. You may also upload an attachment describing the methods including a graph, table, timeline of events.

*****THIS SECTION HAS BEEN EDITED 5/15/2018******

OVERVIEW:

This project will use Photovoice methodology to explore gender-based factors that influence women and their participation in Great Lakes recreational fishing and general perspectives on Great Lakes fisheries within two Michigan communities during the 2018-2019 fishing season (April 1, 2018 through May 31, 2019).

A participatory research method like Photovoice, used in the context of a case study such as this, can be used to answer how? and why? questions (Yin, 2017). This complementary approach to more quantitative methods can invoke explanations of process and allow us to understand how people interpret their own experiences (LeCompte and Schensul, 1999). Photovoice allows research participants to use a combination of photography and personal narratives to share their values, opinions, and stories. Through the Photovoice method, the participants can communicate, record, and explain their angling experiences through pictures they take, written captions, written or oral narratives, storytelling, facilitated group discussion, and potentially community presentations. This method allows participants to represent the aspects of their life that they want to emphasize.

I plan to collect data from participants' pictures, narratives, and conversations through transcription and searching for emergent themes using a grounded theory approach (Strauss and Corbin, 1994; Strauss and Corbin, 1997). Photovoice also allows research participants to advocate both for their specific interests and address power inequities in a resource management context (Bell, 2008; Bell, 2015; Gaventa, 2006; Gaventa and Cornwall, 2009). Fisheries management agencies can use this information to understand the limitations and barriers to accessing and participating in recreational fishing women face (Ghimire et al., 2014; Rodriguez et al. 2016). This research will help identify the conditions that lead women to begin participating in recreational fishing, their reasons for participating, and their interests and concerns related to fisheries management and policy more broadly.

References:

Bell, S. E. (2008). Photovoice as a strategy for community organizing in the central Appalachian coalfields. Journal of Appalachian Studies, 34-48.

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Strauss, A., and Corbin, J. (1994). Grounded theory methodology. Handbook of qualitative research, 17, 273-85.

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Yin, R. K. (2017). Case study research and applications: Design and methods. Sage publications.

DESCRIPTION OF PARTICIPANTS:

The recruited research participants for this study will be women who live in Michigan, are ages 18 and older, and who participate in recreational fishing, and/or who are interested in the management of fisheries.

PARTICIPANT RECRUITMENT:

Research participants will be recruited in four ways:
1) in-person interactions while shadowing Michigan Department of Natural Resources creel clerk staff during their in-person surveys at known fishing sites (e.g., docks, water access points, fishing piers),
2) through contacting existing sports clubs in the study communities, and
3) key informant snowball sampling after making these initial contacts
4) print advertising in both local newspapers and through fliers in public spaces or posted with permission in stores or other locations frequented by outdoor recreational users

DATA COLLECTION:

Once participants are recruited, the Photovoice method consists of a series of group meetings. For this project, research participants will attend a series of 3 or more 60-90 minute group meetings between June 2018 and February 2019. Data collection consists of researcher observations and notes during interactions with research participants as well as the audio recorded group meetings. All meetings will be audio recorded and transcribed. Recordings will be destroyed at the end of the project.

MEETING 1 - The purpose of the first group meeting is for the researchers to explain the overarching project goal (learn more about women's experiences and perspectives regarding Great Lakes fishing) and fisheries, answer questions, and facilitate a discussion among participants about the next steps and their specific goals. The participants will meet other women who fish or who are interested in Great Lakes fishing and fisheries at this and future meetings and determine their own goals for the project as a group. During this first meeting, the researchers will ask participants to take pictures related to fisheries or fisheries management or the Great Lakes. The participants may also decide as a collective group to include photos they may have previously taken prior to the start of the project and use these photos to generate short descriptive stories to share within the group and, possibly, beyond the group. Examples of past Photovoice project goals have been to create a Photo Gallery Walk that can be presented to policymakers or create a personal Photobook that participants can keep for themselves or share with friends and family as they see fit.

BETWEEN MEETING 1 & MEETING 2 - About 2-3 weeks will pass between the first and second meeting. During this time, the participants will be asked to document their own fishing experiences and what Great Lakes fishing and fisheries mean to them through photography. They can either take new pictures or self-select existing photographs they may already have.

MEETING 2 - At the second group meeting, the participants will be asked to share their pictures and stories with

the researcher and other participants either in print or digital form. As a group the participants will discuss their pictures and their meanings, and then each participant will write captions or narratives to accompany their pictures.

MEETING 3 - Any additional group meeting(s) will consist of sharing pictures and stories with the researcher and other research participants, with the option to hold a larger public meeting (this is ultimately up to the participants to decide).

CONSENT FORMS:

Throughout the project, the researchers will maintain confidentiality and will not publish any participant names without permission. This project has three separate consent forms, including a "Participation Consent Form", "Photo Permission Form", and "Copyright Permission Form". Each of these forms is used at different stages of the project. The details of consent forms is described below in section III. 3.

3. Research Site:

Research sites include Schoolcraft County and Ontonagon County in Michigan.

4A. Will you obtain identifiable private information about these individuals? (•) Yes ( ) No

Private Information includes information about behavior that occurs in a context in which an individual can reasonable expect that no observation or recording is taking place, or information provided for specific purposes which the individual can reasonably expect will not be made public (e.g. student record).

Identifiable means that the identity of the participant may be ascertained by the investigator or associated with the information (e.g. by name, code number, pattern of answers, etc.)

4B. Will data be collected and stored in a manner such that participants may be individually identified directly or indirectly? ( ) Yes (•) No

5. Does the study present more than minimal risk to the participants? ( ) Yes (•) No

Minimal risk means that the risks of harm or discomfort anticipated in the proposed research are not greater, considering probability and magnitude, than those ordinarily encountered in daily life or during performance of routine physical or psychological examinations or tests. Note that the concept of risk goes beyond physical risk and includes psychological, emotional, or behavioral risk as well as risks to employability, economic well being, social standing, and risks of civil and criminal liability.

If Yes, you can not use this form, please submit a Protocol Document

6. Is this a graduate level research project? (•) Yes ( ) No

II. Exemption Categories

Check the category or categories which apply and respond to the questions within that exemption section:

☐ **Category 1:** Research, conducted in established or commonly accepted educational settings that specificially involves normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

a) Describe the established or commonly accepted educational setting of the research:

b) Could the research adversely impact student achievement in anyway? ○ Yes ○ No

If Yes, the study does not qualify under this category

c) Could the research adversely impact the assessment of educators who provide instruction? ○ Yes ○ No

If Yes, the study does not qualify under this category

d) Does the research involve a comparison of a proven educational technique to a novel technique? ○ Yes ○ No

If Yes, the study does not qualify under this category

☒ **Category 2:** Research that only includes interactions involving education tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria are met:

☒ The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained either directly or through identifiers linked to the subjects (e.g., anonymous survey);

☒ Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, education advancement, or reputation;

a) Does the research involve minor participants? ○ Yes ◉ No

b) If yes, does the research involve surveys? ○ Yes ◉ No

If yes to b, exemption category 2 does not apply. Complete a Protocol Document and submit for expedited review.

☐ The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained either directly or through identifiers linked to the subjects, and disclosure has risks, **then an IRB limited review will be conducted to ensure privacy and confidentiality of subjects.** This category may NOT be applied to research with children.

a) Does the research involve an intervention? ○ Yes ◉ No

Intervention is defined as, "manipulations of the subject or the subject's environment that are performed for research purposes."

If yes, exemption category 2 does not apply

☐ **Category 3:** Research involving benign behavioral *intervention** in conjunction with the collection of information from an adult subject through verbal or written responses (including data entry) or audiovisual recording if the subject prospectively agrees to the intervention and information collection and at least one of the following criteria is met:

A) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects;

B) Any disclosure of the human subject's response outside the research would not reasonable place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or

C) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subject, **and an IRB limited review will be conducted to ensure privacy and confidentially of subjects.**

***benign behavioral interventions** are brief in duration, harmless, painless, not physically invasive, not likely to have a significant adverse lasting impact on the subjects, and the investigator has no reason to think the subjects will find the intervention offensive or embarrassing. Provided all such criteria are met, examples of such benign behavioral interventions would include having the subject play an online game, having them solve puzzles under various noise condition, or having them decide how to allocate a nominal amount of cash received between themselves and someone else.

a) Describe the benign behavioral intervention:

If the research involves deceiving the subjects regarding the nature or purposes of the research, this exemption is not applicable unless the subject authorizes the deception through a prospective agreement to participate in research in circumstances in which the subject is informed that he or she will be unaware of or misled regarding the nature or purposes of the research.

b) Does the research involve deception? ○ Yes ○ No

c) If so, will subjects prospectively agree to be unaware of or misled regarding the nature of the research? ○ Yes ○ No

If Yes to B) but no to C), the research will not qualify under this category. You must complete and submit a Protocol Document, you cannot use this form.

Does the research involve minors? ○ Yes ○ No

If yes, the research does not qualify under this category. You must complete and submit a Protocol Document, you cannot use this form.

☐ **Category 4:** Secondary research for which consent is not required: Secondary research uses of identifiable private information or identifiable bio specimens. **Call our office for assistance.**

☐ **Category 5:** Research and demonstration projects that are conducted or supported by a Federal department or agency, or otherwise subject to the approval of department or agency heads (or the approval of the heads of bureaus or other subordinate agencies that have been delegated authority to conduct the research and demonstration projects), and that are designed to study, evaluate, improve, or otherwise examine public benefit or service programs, including procedures for obtaining benefits or services under those programs, possible changes in or alternatives to those programs or procedures, or possible changes in methods or levels or payment for benefits or services under those programs. Such projects include, but are not limited to, internal studies by federal employees, and studies under contracts or consulting arrangements, cooperative agrements, or grants. Exempt projects also include waivers of otherwise mandatory requirements using authorities such as section 1115 and 1115A of the Social Security Act, as amended.

NOTE: exemption under Category 5 is only permitted upon Federal Agency approval AND after being published on a federal website.

☐ **Category 6:** Taste & food quality evaluation and consumer acceptance studies: (a) if wholesome foods without additives are consumed; or (b) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

Michigan Tech is not currently set up to use these two exemptions categories at this time. Call our office for assistance.

Category 7: Storage or maintenance for secondary research for which broad consent is required.
Category 8: Secondary research for which broad consent is required.

III. Participants, recruitment, and informed consent

1. Describe the proposed participants:

*****THIS SECTION HAS BEEN EDITED 5/15/2018****** Participants are women ages 18 and up living in Michigan who participate in recreational fishing and/or women who are interested in the management of fisheries.

2. Recruitment: Describe recruitment procedures. Include how participants will be initially identified, approached, or contacted regarding the research and in what setting. *Please provide a copy of any recruitment materials, advertisements, flyers, text of e-mails, etc. which will be used.*

*****THIS SECTION HAS BEEN EDITED 5/15/2018****** Research participants will be recruited in four ways: 1) in-person interactions while shadowing Michigan Department of Natural Resources creel clerk staff during their surveys, 2) through contacting existing sports clubs in these communities, 3) key informant snowball sampling after making these initial contacts, and

4) print advertising in both local newspapers and through fliers in public spaces or posted with permission in stores or other locations frequented by outdoor recreational users

3. Describe procedures for informing participants about the research and how they will actively indicate their agreement to participate. *Please provide a copy of the oral script or information sheet which will be used.*

*****THIS SECTION HAS BEEN EDITED 5/15/2018******

CONSENT FORMS:

This research project requires three separate consent forms. Each to be used at different stages of the research project. They are listed and described in chronological order below:

1) "Participation Consent Form" - written form read and signed by all participants consenting to their participation. At the beginning of the first research meeting (described above in Section I-2), the researcher(s) will ask each potential participant to read a written Consent to Participate form. The researcher will also read this form out loud to all potential participants.

2) "Photo Permission Form" - written form read and signed by anyone who appears in the research project photographs taken by the Photovoice project participants. This project has several stages. As a participatory project, the participants in the project will collectively choose if they wish to share selected photos beyond the group through a community photo exhibit or other public display. Should the group decide to share the photos with the public through a public photo exhibit or display, project participants will be required to obtain permission from any identifiable individuals appearing in the photos selected to share beyond the group. This form gives the identifiable individuals opportunity to consent to their image being used in a public photo display and gives the MTU researchers permission to use images of the individuals who sign the form outside the research project group meetings. This form includes both research participants (if they appear in their own photographs) and non-research participants who happen to appear in the research participants' photographs.

3) "Copyright Permission Form" - written form read and signed by participants willing to have their copyright images shared outside the research meetings (including a section for including their name associated with their copyright images). The Copyright Permission form gives Michigan Technological University researchers Dr. Angie Carter and Erin Burkett and the Michigan Sea Grant permission to use images and narratives created by the research participants while still retaining copyright for participants.

4. Compensation/incentives: Will participants or others be offered incentives for their participation (e.g., gifts, payment, reimbursement, services, extra or course credit, or other incentives? ○ Yes ◉ No

If yes, please describe the amount, alternative ways to earn compensation (i.e., in cases of course/extra credit), and when compensation/incentives will be awarded. Please be sure to follow the guidance document, **Procedure for Compensation for Human Subject Participants (found on our website)**.

5. Dual relationships: Does the investigator, co-investigators, or any member of the research team, or anyone assisting with the research have an authority relationship (e.g., instructor/student, employer or supervisor/employee, or other) with potential participants? ○ Yes ◉ No

If yes, describe the relationship, and indicate how the research will be conducted to avoid undue influence on participation

6. Will any aspect of the research be conducted in a classroom setting during class time? ○ Yes ◉ No

If yes, describe what those who choose not to participate will be doing, and provide justification for use of class time for research. *You may be asked to include the course syllabus.*

7. Will all participants, their parents/guardians and /or their legally authorized representative (as applicable) be fluent in English? ◉ Yes ○ No

If no, explain how informed consent will be obtained, and provide a copy of the translated documents(s) to be used.

8. If research will be conducted at an international site, indicate the investigator's familiarity with the culture and cultural norms, and how the research may affect an individual's standing in their community ☒ N/A

IV. Instruments

Be sure to upload the questionnaire(s), survey instrument(s), or list of interview or focus group questions to your irbnet.org submission package.

V. Privacy and Confidentiality

1. Privacy: Describe the conditions under which interaction with the subjects will occur (e.g., consent discussion occurs in a private room). Explain how these conditions adequately address the PRIVACY of subject:

All project meetings, including the consent discussion, will take place in a private setting (e.g., a private meeting room reserved in a local library).

2. Personally identifiable information: Will the researchers obtain any personally identifiable information (PII) from or about participants (e.g. names, address, telephone numbers, etc.)?

◉ Yes ○ No - (proceed to Question 3)

a) What direct identifiers will be obtained?

name, email address, telephone number

b) How long will the PII be maintained?

for the duration of the research project (until May 31, 2019)

c) Why is it necessary to maintain direct identifiers?

Follow-up studies may be conducted with future research funds, which means it may be necessary to contact research participants in the future.

d) Describe the coding system that will be used to protect against disclosure of these identifiers.

*****THIS SECTION HAS BEEN EDITED 5/15/2018******

For academic publications in peer-reviewed journals or other publications associated with this research project, we will use first-name pseudonyms in place of names (e.g., instead of "Heather" I can use the pseudonym "Sarah") The exception to this is if participants have agreed and signed a consent form allowing for their name to be used in association with their pictures and captions. In that case, we will use participants' real names. In cases where pseudonyms or "code names" are used, these codes will be associated with the interview content in transcriptions and file names, the codebook itself will be kept in a secure file.

e) How long will the link between identifiers and code be maintained?

For the duration of the research project (until May 31, 2019)

f) Explain how the research will mitigate a risk of participant responses that could place them at risks such as criminal or civil liability, or be damaging to their financial standing, employability, insurability, reputation, or be stigmatizing (e.g. limiting access to identifiers, obtaining a Certificate of Confidentiality from NIH, etc.). *If a Certificate of Confidentiality is obtained, provide a copy to the IRB once available.*

All reporting of any information collected from research participants will be kept anonymous.

3. Will any demographic information be collected which could lead to a deductive disclosure of participant(s) indentifies? If so, how will participant privacy be addressed?

No.

4. In what format(s) will the data originate, be shared among team members/collaborators, and be maintained during the life of the study (e.g. paper, digital, electronic media, video, audio or photographic):

Data will be kept in audio recording files, Microsoft Word documents, and Microsoft Excel files. They will be shared through a secure GoogleDrive folder with team members/collaborators and maintained in their digital format throughout the project.

5. Where will data be stored including security provisions that will be taken to protect the data (include both paper/hardcopy records and digital/electronic files).

Data will be stored on a secure GoogleDrive folder hosted by MTU and shared only with team members/collaborators.

6. Are there potential ethical or legal circumstances when it would be necessary to break confidentiality (e.g., requirements for mandated reporting or other professional obligations to report)? If so, describe:

No

7. Final disposition: Please describe at what point in time PII and deductive identifiers will be removed from the dataset and/or the records retention plan for the research records:

*****THIS SECTION HAS BEEN EDITED 5/15/2018******

Personally identifiable information and deductive identifiers will be removed from the dataset as soon as data is collected, and all research participants will be given a first-name pseudonym. A codebook connecting the pseudonyms to PII will be kept in print format in a locked drawer on MTU campus.

Click here to read instructions on how to submit form

C IRB Package for Becoming an Outdoors Woman Study

Michigan Tech

Office of Compliance, Integrity, and Safety
Phone: 906-487-2902 E-mail: IRB@mtu.edu
1400 Townsend Drive
Lakeshore Center, 3rd Floor
Houghton, MI 49931

Reset Form

Exemption Request and/or Limited Review

Federal regulations (45 CFR 46) permit the exemption of some types of research from IRB review.
Exemption does not mean that you do not need to submit a study for review; our office requests information about your study and will determine the level of review required for approval.
If you have any questions, feel free to contact our office.

Eligible for Exemption: There are several classifications of research which may involve human subjects but their classification falls outside of the IRB's policies and jurisdiction.

Determination that research is exempt or requires limited Institutional Review Board (IRB) review is made through the Office of Compliance, Integrity, and Safety. Exemption from review is only available to certain categories of research as define by federal regulation. If you have questions about whether your project might qualify for exemption, please contact our office.

Project Title	State Agency Staff Perceptions of Social Science Research in Great Lakes Fishery Management		
Project Start Date	Mar 31, 2018	Project End Date	May 31, 2019
Principal Investigator	Dr. Adam Wellstead	Department	Social Sciences
E-mail	awellste@mtu.edu	Phone	906-487-2115

I. Project Description

1. Purpose and goals of the research:
(text field will expand)

The research project goal is to understand how Great Lakes fisheries managers and decision makers at state natural resource agencies define, understand, and work with social science/human dimensions data. This includes understanding the internal processes within organizations that facilitate or hinder staff's ability to incorporate social sciences information into fisheries management and policy decisions. Semi-structured phone interviews are the main data collection method.

2. Methods and procedures: Describe in detail what subjects will be asked to do, what information will be collected about them, and when or how often research procedures will be conducted. You may also upload an attachment describing the methods including a graph, table, timeline of events.

Overview - The research project includes conducting interviews (approximately 20) with fisheries managers and decision makers from state natural resource agencies across Upper Great Lakes states. In these interviews the researcher will ask interviewees share how they use or don't use social science data related to the human aspects of recreational fishing in their recreational fisheries management practices and decisions. Interviewees will also

be asked how they value or interpret human dimensions data more generally.

Participant recruitment - Research participants will be recruited through preexisting connections from a prior research project. The first recruitment method will be emailing potential participants, followed by follow-up emails, and finally through phone calls.

Description of participants - Participants are public officials who will be asked about how they do their jobs. No data that poses anything more than minimal risk will be collected.

Data collection - The interviews will be conducted remotely via telephone and/or internet communication. Participants in remote interviews will be asked for their oral consent before participating and informed that they do not have to participate and that they may withdraw from the interviews at any time. Interviews will be recorded and transcribed. Recordings will be destroyed at the end of the project. I will maintain confidentiality and will not publish any participant names, specific job titles, or contact information.

3. Research Site:

Interviews will be conducted over the phone, so the research location will be Michigan Technological University (Houghton, MI) for the PI Erin Burkett.

4A. Will you obtain identifiable private information about these individuals? ◉ Yes ○ No

Private Information includes information about behavior that occurs in a context in which an individual can reasonable expect that no observation or recording is taking place, or information provided for specific purposes which the individual can reasonably expect will not be made public (e.g. student record).

Identifiable means that the identity of the participant may be ascertained by the investigator or associated with the information (e.g. by name, code number, pattern of answers, etc.)

4B. Will data be collected and stored in a manner such that participants may be individually identified directly or indirectly? ◉ Yes ○ No

5. Does the study present more than minimal risk to the participants? ○ Yes ◉ No

Minimal risk means that the risks of harm or discomfort anticipated in the proposed research are not greater, considering probability and magnitude, than those ordinarily encountered in daily life or during performance of routine physical or psychological examinations or tests. Note that the concept of risk goes beyond physical risk and includes psychological, emotional, or behavioral risk as well as risks to employability, economic well being, social standing, and risks of civil and criminal liability.

If Yes, you can not use this form, please submit a Protocol Document

6. Is this a graduate level research project? ◉ Yes ○ No

II. Exemption Categories

Check the category or categories which apply and respond to the questions within that exemption section:

☐ **Category 1**: Research, conducted in established or commonly accepted educational settings that specificially involves normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

a) Describe the established or commonly accepted educational setting of the research:

b) Could the research adversely impact student achievement in anyway? ○ Yes ○ No

If Yes, the study does not qualify under this category

c) Could the research adversely impact the assessment of educators who provide instruction? ○ Yes ○ No

If Yes, the study does not qualify under this category

d) Does the research involve a comparison of a proven educational technique to a novel technique? ○ Yes ○ No

If Yes, the study does not qualify under this category

☒ **Category 2:** Research that only includes interactions involving education tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria are met:

☒ The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained either directly or through identifiers linked to the subjects (e.g., anonymous survey);

☒ Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, education advancement, or reputation;

a) Does the research involve minor participants? ○ Yes ◉ No

b) If yes, does the research involve surveys? ○ Yes ◉ No

If yes to b, exemption category 2 does not apply. Complete a Protocol Document and submit for expedited review.

☐ The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained either directly or through identifiers linked to the subjects, and disclosure has risks, **then an IRB limited review will be conducted to ensure privacy and confidentiality of subjects**. This category may NOT be applied to research with children.

a) Does the research involve an intervention? ○ Yes ◉ No

Intervention is defined as, "manipulations of the subject or the subject's environment that are performed for research purposes."

If yes, exemption category 2 does not apply

☐ **Category 3:** Research involving benign behavioral *intervention** in conjunction with the collection of information from an adult subject through verbal or written responses (including data entry) or audiovisual recording if the subject prospectively agrees to the intervention and information collection and at least one of the following criteria is met:

A) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects;

B) Any disclosure of the human subject's response outside the research would not reasonable place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or

C) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subject, **and an IRB limited review will be conducted to ensure privacy and confidentially of subjects.**

***benign behavioral interventions** are brief in duration, harmless, painless, not physically invasive, not likely to have a significant adverse lasting impact on the subjects, and the investigator has no reason to think the subjects will find the intervention offensive or embarrassing. Provided all such criteria are met, examples of such benign behavioral interventions would include having the subject play an online game, having them solve puzzles under various noise condition, or having them decide how to allocate a nominal amount of cash received between themselves and someone else.

a) Describe the benign behavioral intervention:

If the research involves deceiving the subjects regarding the nature or purposes of the research, this exemption is not applicable unless the subject authorizes the deception through a prospective agreement to participate in research in circumstances in which the subject is informed that he or she will be unaware of or misled regarding the nature or purposes of the research.

b) Does the research involve deception? ○ Yes ○ No

c) If so, will subjects prospectively agree to be unaware of or misled regarding the nature of the research? ○ Yes ○ No

If Yes to B) but no to C), the research will not qualify under this category. You must complete and submit a Protocol Document, you cannot use this form.

Does the research involve minors? ○ Yes ○ No

If yes, the research does not qualify under this category. You must complete and submit a Protocol Document, you cannot use this form.

☐ **Category 4:** Secondary research for which consent is not required: Secondary research uses of identifiable private information or identifiable bio specimens. **Call our office for assistance.**

☐ **Category 5:** Research and demonstration projects that are conducted or supported by a Federal department or agency, or otherwise subject to the approval of department or agency heads (or the approval of the heads of bureaus or other subordinate agencies that have been delegated authority to conduct the research and demonstration projects), and that are designed to study, evaluate, improve, or otherwise examine public benefit or service programs, including procedures for obtaining benefits or services under those programs, possible changes in or alternatives to those programs or procedures, or possible changes in methods or levels or payment for benefits or services under those programs. Such projects include, but are not limited to, internal studies by federal employees, and studies under contracts or consulting arrangements, cooperative agrements, or grants. Exempt projects also include waivers of otherwise mandatory requirements using authorities such as section 1115 and 1115A of the Social Security Act, as amended.

NOTE: exemption under Category 5 is only permitted upon Federal Agency approval AND after being published on a federal website.

☐ **Category 6:** Taste & food quality evaluation and consumer acceptance studies: (a) if wholesome foods without additives are consumed; or (b) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

Michigan Tech is not currently set up to use these two exemptions categories at this time. Call our office for assistance.

Category 7: Storage or maintenance for secondary research for which broad consent is required.
Category 8: Secondary research for which broad consent is required.

III. Participants, recruitment, and informed consent

1. Describe the proposed participants:

Participants are public agency staff at state Departments of Natural Resources. This may include executive, mid-level, and lower-level agency staff.

2. Recruitment: Describe recruitment procedures. Include how participants will be initially identified, approached, or contacted regarding the research and in what setting. *Please provide a copy of any recruitment materials, advertisements, flyers, text of e-mails, etc. which will be used.*

Participants will be identified through online public information sources like the state website that lists staff names, contact information, and position titles. The first recruitment method will be an initial email, which will be followed up with another email and phone call.

3. Describe procedures for informing participants about the research and how they will actively indicate their agreement to participate. *Please provide a copy of the oral script or information sheet which will be used.*

At the beginning of any phone interviews, the research participants will be read an oral consent to participate in research. In this oral consent, the resesearcher will describe the purpose of the study and let participants know they can leave the discussion at any point and choose to skip any questions at any point. They will also

be informed that their responses will be kept anonymous.

4. Compensation/incentives: Will participants or others be offered incentives for their participation (e.g., gifts, payment, reimbursement, services, extra or course credit, or other incentives? ○ Yes ◉ No

If yes, please describe the amount, alternative ways to earn compensation (i.e., in cases of course/extra credit), and when compensation/incentives will be awarded. Please be sure to follow the guidance document, **Procedure for Compensation for Human Subject Participants (found on our website)**.

5. Dual relationships: Does the investigator, co-investigators, or any member of the research team, or anyone assisting with the research have an authority relationship (e.g., instructor/student, employer or supervisor/employee, or other) with potential participants? ○ Yes ◉ No

If yes, describe the relationship, and indicate how the research will be conducted to avoid undue influence on participation

6. Will any aspect of the research be conducted in a classroom setting during class time? ○ Yes ◉ No

If yes, describe what those who choose not to participate will be doing, and provide justification for use of class time for research. *You may be asked to include the course syllabus.*

7. Will all participants, their parents/guardians and /or their legally authorized representative (as applicable) be fluent in English? ◉ Yes ○ No

If no, explain how informed consent will be obtained, and provide a copy of the translated documents(s) to be used.

8. If research will be conducted at an international site, indicate the investigator's familiarity with the culture and cultural norms, and how the research may affect an individual's standing in their community ☒ N/A

IV. Instruments

Be sure to upload the questionnaire(s), survey instrument(s), or list of interview or focus group questions to your irbnet.org submission package.

V. Privacy and Confidentiality

1. Privacy: Describe the conditions under which interaction with the subjects will occur (e.g., consent discussion occurs in a private room). Explain how these conditions adequately address the PRIVACY of subject:

Interviews will be held over the phone. The researcher will be in a private room on MTU campus. The participants will probably be located in their workplaces, but that is ultimately up to them.

2. Personally identifiable information: Will the researchers obtain any personally identifiable information (PII) from or about participants (e.g. names, address, telephone numbers, etc.)?

(●) Yes ( ) No - (proceed to Question 3)

a) What direct identifiers will be obtained?

name, email address, workplace telephone number

b) How long will the PII be maintained?

for the duration of the research project (until May 31, 2019)

c) Why is it necessary to maintain direct identifiers?

Follow-up studies may be conducted with future research funds, which means it may be necessary to contact research participants in the future.

d) Describe the coding system that will be used to protect against disclosure of these identifiers.

Codes for names will be used (e.g., instead of "Jack Smith" I can use the code "John Pope"), and although the codes will be associated with the interview content in transcriptions and file names, the codebook itself will be kept in a secure file.

e) How long will the link between identifiers and code be maintained?

for the duration of the research project (until May 31, 2019)

f) Explain how the research will mitigate a risk of participant responses that could place them at risks such as criminal or civil liability, or be damaging to their financial standing, employability, insurability, reputation, or be stigmatizing (e.g. limiting access to identifiers, obtaining a Certificate of Confidentiality from NIH, etc.). *If a Certificate of Confidentiality is obtained, provide a copy to the IRB once available.*

All reporting of the interview information will be kept anonymous.

3. Will any demographic information be collected which could lead to a deductive disclosure of participant(s) indentifies? If so, how will participant privacy be addressed?

No.

4. In what format(s) will the data originate, be shared among team members/collaborators, and be maintained during the life of the study (e.g. paper, digital, electronic media, video, audio or photographic):

Data will be kept in audio recording files, Microsoft Word documents, and Microsoft Excel files. They will be shared through a secure GoogleDrive folder with team members/collaborators and maintained in their digital format throughout the project.

5. Where will data be stored including security provisions that will be taken to protect the data (include both paper/hardcopy records and digital/electronic files).

Data will be stored on a secure GoogleDrive folder hosted by MTU and shared only with team members/collaborators.

6. Are there potential ethical or legal circumstances when it would be necessary to break confidentiality (e.g., requirements for mandated reporting or other professional obligations to report)? If so, describe:

No

7. Final disposition: Please describe at what point in time PII and deductive identifiers will be removed from the dataset and/or the records retention plan for the research records:

Personally identifiable information and deductive identifiers will be removed from the dataset as soon as data is collected, and all research participants will be given a pseudonym. A codebook connecting the pseudonyms to PII will be kept in print format in a locked drawer on MTU campus.

Click here to read instructions on how to submit form